Contractor: IFIN-HH
Cod fiscal : RO3321234

Raport anual de activitate privind desfăşurarea programului nucleu PN 09 37 „Cercetari de fizica si inginerie nucleara in context european" NIFIN/3 Perioada 2009 - 2015

Durata programului: ___7_____ ani
Data începerii: _____2009_____ Data finalizării: _____2015_____

1. Scopul programului

a) Dezvoltarea capacitatii de cercetare stiintifica in domeniul fizicii nucleare si al aplicatiilor tehnologice ale acesteia.
b) Realizarea unor infrastructuri avansate capabile sa sustina activitatea de cercetare la nivelul cerintelor actuale, necesare participarii cu succes la programele nationale si europene.
c) Furnizarea de servicii de specialitate agentilor economici si institutiilor de interes social.
d) Indeplinirea obligatiilor asumate prin acorduri, intelegeri si contracte internationale, in sistemul Comunitatii Europene si bilaterale.
e) Acreditarea si notificarea laboratoarelor de tehnici nucleare la nivelul cerintelor europene.
f) Cresterea competitivitatii in cadrul Planului National de Cercetare, Dezvoltare si Inovare II.

2. Modul de derulare al programului

In cadrul celor 4 obiective din Programul Nucleu NIFIN-3 in cei 7 ani (2009-2015) au activat 18 proiecte si au fost realizate, un numar de 449 faze. Lista proiectelor pentru fiecare obiectiv este mai jos:

Nr. Crt.	*Obiectiv / Titlul Proiectului*	*Deartament – Director de Proiect*
Obiectivul 1: Cercetari teoretice si experimentale in descrierea materiei sub atomice. Cod obiectiv: PN 09 37 01		
1	Cercetari avansate de fizica particulelor elementare	DFPE-Calin Alexa
2	Elaborarea de modele teoretice si metode matematice riguroase pentru investigarea structurii materiei	DFT-Aurel Isar
3	Fizica starilor extreme ale materiei a proprietatilor si dinamicii acestora	DFH-Mihai Petrovici
4	Dezvoltarea infrastructurii Grid si de calcul performant pentru fizica sistemelor complexe	DPETI/CTIC-Mihnea Dulea
5	Cercetari de fizica atomica si nucleara utilizand acceleratorul Tandem si mari facilitati europene	DFN-Nicolae Mărginean
6	Studiul fenomenelor fizice prin metode teoretice si computationale in domenii de frontiera (incheiat in 2012)	DFT/CFNDC-Sabin Stoica
7	Cercetari prospective de fizica nucleelor exotice ,astrofizica nucleara si cu fascicule radioactive	IFIN-HH - Livius Trache

8	Cercetari teoretice si experimentale asupra interactiei cimpurilor foarte intense cu nucleele si materia nucleara	IFIN-HH - Constantin Ivan
Obiectivul 2: Aplicatii interdisciplinare ale fizicii nucleare. Cod obiectiv: PN 09 37 02		
9	Autentificarea patrimoniului cultural si datare prin termoluminescenta si luminescenta stimulata optic	IRASM-Valentin Moise
10	Dezvoltarea infrastructurilor de accelerare si experimentale pentru perfectionarea tehnicilor analitice de caracterizare a materialelor la ciclotronul IFIN-HH (incheiat in 2012)	DFNA/DAC-Dorin Dudu
11	Informare si diseminare a rezultatelor activitatii de cercetare din fizica nucleara	CPSDN-Gabriel Stanescu
12	Realizarea si exploatarea de facilitati experimentale in fizica nucleara aplicata	DFNA- Florin Constantin
13	Cercetari destinate dezvoltarii bazei de etaloane a Romaniei in domeniul radiatiilor ionizante, dedicate aplicatiilor medicale si radioactivitatii mediului	DRMR-Sorin Bercea
14	Cercetari in realizarea unor noi compusi radiomarcati cu aplicatii in stiintele vietii	DRMR - Dana Niculae
15	Dezvoltarea infrastructurii experimentale si a bazei materiale de la acceleratoarele de tip Tandem din IFIN-HH pentru extinderea metodelor si tehnicilor de caracterizare/prelucrare/implantare cu fascicule accelerate	DAT – Dan Ghita
Obiectivul 3: Impactul materialelor radioactive asupra vietii si mediului. Cod obiectiv: PN 09 37 03		
16	Dezvoltarea de cercetari experimentale, produse informatice si programe expert pentru evaluarea impactului activitatilor nucleare si industriale asupra mediului inconjurator si sistemelor biologice	DFVM-Ana Stochioiu
17	Tehnici si tehnologii de dezafectare, aplicabile la Instalatii Nucleare si Radiologice de cercetare	DDR-Drăguşin Mitică
Obiectivul 4: Elaborarea studiilor științifice și tehnice necesare proiectului ELI-NP . Cod obiectiv: PN 09 37 04 (incheiat in 2014)		
18	Stabilirea principalelor directii stiintifice ce urmeaza a se desfasura la proiectul ELI-NP si a mijloacelor tehnice de realizare a acestora, definirea caracteristicilor tehnice ale spatiilor si echipamentelor pentru evaluarea costurilor si realizarea studiului de fezabilitate.	IFIN-HH - Constantin Ivan

Aceste faze au fost:

<u>2009:</u>

1. Studiul fenomenelor noi in interactii electron-proton la acceleratorul HERA.
2. Studiul cuarcilor excitati in ciocnirile ep la HERA (Partea I).
3. Ansamblu experimental pentru testarea detectorilor de tip SiPM (Partea I).
4. Moduri liniare si neliniare intr-o plasma cu praf. Influenţa variatiei sarcinii electrice a particulelor de praf(Partea I).
5. Compactificari ale teoriei corzilor heterotice pe varietati sase-dimensionale cu strustura SU (2).

6. Structura analogilor A=82 si efecte de rupere a simetriei de isospin asupra dezintegrarii beta Fermi superpermisa (Partea I).
7. Proiectarea si realizarea unui prototip de detector de timp de zbor cu electrozi rezistivi, de inalta rezolutie temporala, pentru rate mari de numarare.
8. Dezvoltarea si optimizarea infrastructurii de calcul si de comunicatii a IFIN-HH (Partea I).
9. Dezvoltarea si optimizarea infrastructurii de calcul si de comunicatii a IFIN-HH (Partea a-II-a).
10. Realizarea instalatiei de alimentare cu azot lichid a detectorilor de germaniu.
11. Determinarea si monitorizarea nivelului de radiatie la complexul acceleratorului Tandem.
12. Studiul procesului de colectie de sarcina in diamant policristalin obtinut prin depunere in faza de vapori (CVD) la iradierea cu ioni grei in domeniul de energii medii (Partea I).
13. Crearea conditiilor de lucru pentru stagiarii DITANET: pregatirea constructiei detectorului de tip "Zero Time". Analiza radioactivitatii gama in probe de mediu (apa, sol, vegetatie) - Proficiency test IAEA.
14. Noi informatii privind stari izomere in nuclee bogate in neutroni din vecinatatea „insulei de inversie" cu N=20.
15. Masuratori ale fluxului de miuoni cosmici - sursa de informatii despre activitatea solara; studii corelate ale cascadelor atmosferice extinse masurate in sisteme de detectie din experimentele internationale: KASCADE-Grande si LOPES.
16. Studii privind investigarea alginatului de sodiu la diferite hidratari si temperaturi si obtinerea spectrelor de imprastiere cvasielastica. Imprastierea Coulombiana multipla in instalatia experimentala DIRAC.
17. Calculul elementelor de matrice cu coduri de tip "model in paturi" pentru dezintegrarea beta dubla a nucleului Ca48 (Partea I).
18. Calculul elementelor de matrice cu coduri de tip "model in paturi" pentru dezintegrarea beta dubla a nucleului Ca48 (Partea a-IIa).
19. Stabilirea si implementarea metodologiei de autentificare a obiectelor de patrimoniu.
20. Realizarea de modele experimentale pentru sisteme optice de forma conica pentru focalizarea ionilor cu energii de ordinul MeV.
21. Instalatie automatizata pentru efectuarea de masuratori izoterme de condensare capilara (Partea I).
22. Pilot de informare şi diseminare (Partea I).
23. Elaborarea documentatiei pentru autorizarea CPSDN ca furnizor de formare profesionala pentru functia de tehnician, conform normativelor in vigoare.
24. Studiul probelor geologice de aur nativ romanesc prin metoda XREF in vederea determinarii provenientei obiectelor arheologice de aur.
25. Teste de metodica si dezvoltarea procedurilor de lucru in laboratorul de masurare a radonului de interior (Partea I).
26. Omologare serie zero sonda detectoare Gamma SPIN 224.
27. .Realizare stand de etalonare in doza absorbita pentru radiatii beta in domeniul 0,1mGy ... 1 Gy.
28. Elaborarea procedurilor de verificare metrologica a aparaturii dozimetrice in conformitate cu cerintele Biroului Roman de Metrologie Legala.
29. Realizarea si caracterizarea standului pentru etalonarea fotodozimetrelor la radiatii gamma si beta in domeniul 10 μSv ... 1Sv (Partea I).
30. Participare la programul EURAMET: Etalonarea absoluta si studiul schemei de dezintegrare pentru radionuclidul 124Sb.
31. Executie lucrari preliminare de reabilitare laborator sinteze compusi marcati.
32. Studiul detectiei scintigrafice a inflamatiilor prin tintire activa cu nanoparticule de albumina:prepararea complexului Ligand-nanoparticula.
33. Implementare sistem centralizat de dozimetrie pentru monitorizarea zonelor controlate si supravegheate din departamentul CPR, in conformitate cu cerintele normelor de securitate radiologica (CNCAN).
34. Evaluarea potentialului radionuclidului Ga-68,β+ emitator in obtinerea de radiofarmaceutice destinate diagnosticului si monitorizarii terapeutice prin imagistica PET (Partea I).
35. Dezafectare instalatie si utilaje extistente in cadrul laboratorului Tritiu in vederea reamenajarii (partea I)
36. .Modele cuantice simple ale celulei vii si posibile explicatii ale toxicitatii apei grele. Cresterea performantelor metodelor folosite pentru studiul distributiei radioactivitatii mediului din zona de influenta a IFIN-HH.
37. .Microdozimetria aplicata in dozimetria interna ocupationala. Importanta fondului scazut in spectrometria gama aplicata la probe de mediu (sol, sediment).
38. Elaborarea preprocesorului meteo IFIN. Studii de toxicitate a nanoparticulelor . Diversificarea determinarilor de genotoxicitate si citotoxicitate obtinute prin Comet assay (Partea I).
39. Instalare pilot al sitemului expert RODOS in centrul de urgenta nucleara. Utilizarea in urgente nucleare a modulelor de analiza din sisteme expert privind impactul radionuclizilor in mediu.
40. Finalizarea documentatiei in vederea notificarii CNCAN pentru Laboratorul de Radiochimie (sport pentru transfer tehnologic); LAGUNA-contract nr. 212343 (activitati suport pentru PC7).
41. Caracterizarea radiologica a instalatiei post-accelerare TANDEM si elaborare proceduri de dezafectare (Partea I).
42. Caracterizarea radiologica a instalatiei post-accelerare TANDEM si elaborare proceduri de dezafectare (Partea a-II-a).

43. Studiul si elaborarea unei tehnologii de tratare a efluentilor radioactivi lichizi proveniti din dezafectarea Reactorului de Cercetare VVR-S si alte activitati nucleare .

2010 :

44. Implementare de generatori de evenimente pentru simularea interactiilor antiprotonilor pe protoni si nuclee in experimentul PANDA.
45. Producerea atomului exotic hadronic de tip heliu-kaonic şi măsura de precizie a tranziţiei 3d → 2p.
46. Contributii la imbunatatirea setului de programe necesare functionarii sistemului de achizitie pentru experimentul ATLAS.
47. .Efecte anarmonice in tranzitiile nucleare de tip beta si dublu beta.
48. Studiul dinamicii entanglementului (corelatiilor cuantice) in sisteme cuantice deschise.
49. Activitati de calibrare a datelor experimentale obtinute cu configuratia completa 4 a detectorului CHIMERA: experimentul ISOSPIN.(partea I).
50. Activitati de calibrare a datelor experimentale obtinute cu configuratia completa 4 a detectorului CHIMERA: experimentul ISOSPIN.(partea I).
51. Pachet de programe de analiza si interpretare a datelor de la experimentul ALICE.
52. Metode si instrumente software de crestere a productivitatii si de scadere a costurilor in centrele grid de mari dimensiuni cu organizatii virtuale multiple.(partea I).
53. .Metode si instrumente software de crestere a productivitatii si de scadere a costurilor in centrele grid de mari dimensiuni cu organizatii virtuale multiple.(partea II).
54. Studiul proceselor de ionizare si captura electronica in ciocniri ion-atom la energii de ordinul MeV/u. (I). Sectiuni eficace de ionizare a paturilor atomice interne.Oligoelementele în cancerul cutanat. Noi date experimentale folosind metoda PIXE.
55. Validarea prin masuratori la Tandemul IFIN-HH a calculelor de activare indusa de protoni si deuteroni pe elemente structurale ale acceleratorului liniar al SPIRAL2. Proiectarea statiei multi-MW a EURISOL. Pregatirea si calibrarea sistemului de detectie, conectat prin cele 81 de noi linii de intarziere la sistemul de achizitie VME.
56. Masuratori de calibrare a acceleratorului Tandem al IFIN-HH.Identificarea geometriei optime si realizarea proiectului mecanic pentru sistemului multi-detector HPGe.
57. Masuratori de sectiuni de interes pentru metodele IBA.
58. Constructia structurii mecanice si completarea sistemului multi-detector HPGe.
59. .Nedeterminari in pozitia de vertex datorita imprastierii Coulombiene multiple.
60. Intercomparare internationala pentru analiza si certificarea elementelor urma in frunze de tutun (2 specii) prin tehnica INAA. Masuratori in fascicol pulsat de neutroni la GELINA- IRMM-JRC Geel.
61. Metode operatoriale in studiul oscilatorului anarmonic cuartic cu aplicatii in fizica statistica a sistemelor cvasi-uni-dimensionale(partea I).
62. Metode operatoriale in studiul oscilatorului anarmonic cuartic cu aplicatii in fizica statistica a sistemelor cvasi-uni-dimensionale(partea II).
63. Stabilirea si implementarea metodologiei de datare a rocilor (Partea I).
64. Stabilirea si implementarea metodologiei de datare a rocilor (Partea II).
65. Instalatie automatizata pentru efectuarea de masuratori izoterme de condensare capilara (Partea a-II-a).
66. Caracterizarea si diagnosticarea fascicolelor obtinute cu sisteme optice conice(partea I).
67. Caracterizarea si diagnosticarea fascicolelor obtinute cu sisteme optice conice(partea II).
68. Model experimental pentru tun electronic in regim continuu cu energie variabila.
69. Pilot de informare şi diseminare (Partea a-II-a).
70. Susţinere şi calibrare pilot, necesităţi pentru crearea Platformei de informare şi diseminare.
71. Teste de metodica si dezvoltarea procedurilor de lucru in laboratorul de masurare a radonului de interior (Partea a-II-a).
72. .Experimentari pentru detectia neutrinilor solari utilizand balanta de Torsiune ultrasensibila cu cristal de safir(partea I).
73. Experimentari pentru detectia neutrinilor solari utilizand balanta de Torsiune ultrasensibila cu cristal de safir(partea II).
74. Evaluarea datelor nucleare de dezintegrare pentru radionuclidul 228Ra.
75. Evaluarea datelor nucleare de dezintegrare pentru radionuclizii 211Bi si 211Po, in cadrul colaborarii internationale Decay Data Evaluation Project (DDEP).
76. Elaborarea documentatiei referitoare la cerintele tehnice pentru acrediatrea RENAR a laboratorului de incercari pentru incercari si verificari sisteme de filtrare si camere curate.
77. .Elaborarea metodelor de evaluare a parametrilor de asigurarea calitatii la instalatiile radiologice utilizate in domeniul medical.
78. Sinteza de radiofarmaceutice de inalta puritate marcate cu Ga-68 pentru imagistica PET.
79. Realizare model experimental sursa liniara distribuita de Co-60; Intocmirea documentatie pentru obtinerea Autorizatiei de Securitate Radiologica (ASR) pentru produsul Sursa radioactiva inchisa de Ir-192, tip SRC-Ir; Intocmire si inregistrare documentatie ca dispozitiv medical.
80. Proiectare si implementare sistem de management al calitatii in conformitate cu cerintele ISO 9001 pentru sursele radioactive inchise.

81. Realizare modele conceptuale sistem de colectare si monitorizare efluenti lichizi potential contaminati cu tritiu.
82. .Elaborarea metodei de marcare cu 99mTc; studii de stabilitate a produsului marcat.
83. Amenajare laborator pentru testarea biologica in vitro a radiofarmaceuticelor sintetizate .
84. Studii preliminare privind decontaminarea si monitorizarea efluentilor gazosi potential contaminati radioactiv.
85. Formularea farmaceutica a complexului marcat.
86. Dozimetria fotografica utilizata in monitorizarea personalului expus profesional la radiatii ionizante. Performante. Incertitudini de masurare. Metode de reducere a fondului in spatiul de masura prin spectrometrie gama.
87. Perfectionarea sistemelor dozimetrice termoluminiscente in vederea asigurarii calitatii monitorizarii radiologice in zona exterioara perimetrului RN si STDR. Asimilarea de noi metode si tehnologii de evaluare a prezentei izotopilor emitatori beta-minus proveniti din activitatile nucleare ale IFIN-HH prin spectrometrie cu scintilatori lichizi.(partea I).
88. Perfectionarea sistemelor dozimetrice termoluminiscente in vederea asigurarii calitatii monitorizarii radiologice in zona exterioara perimetrului RN si STDR. Asimilarea de noi metode si tehnologii de evaluare a prezentei izotopilor emitatori beta-minus proveniti din activitatile nucleare ale IFIN-HH prin spectrometrie cu scintilatori lichizi.(partea II).
89. Modelarea transferului tritiului in cuplajul atmosfero-sol-planta. Dezvoltarea metodelor specifice de monitorare IN-VIVO a radioizotopilor iodului intiroida in scopuri de radioprotectie operationala. Tehnici nucleare aplicate in studiul stabilirii vitezei de erodare a terenurilor in panta din bazine hidrografice mici.
90. Studii si elaborare tehnologii de conditionare a surselor radioactive de Am, Pu si Ra, epuizate, de uz industrial in vederea stocarii pe termen lung.(Partea I).
91. Elaborare plan conceptual de dezafectare Reactor Nuclear Putere 0 (RP0) (partea I).
92. Elaborare plan conceptual de dezafectare Reactor Nuclear Putere 0 (RP0) (partea II).
93. Elaborarea studiilor privind laserii de mare pitere, surse gamma de mare intensitate si experimente.
94. Realizarea studiului de fezabilitate.
95. Realizarea proiectului de finantare.
96. Cercetare dezvoltare in sprijinul definitivarii detaliilor tehnice ale proiectului.

2011 :

97. Studiul producerii barionilor beauty la colidere liniare in optiunea GigaZ\ (partea I).
98. Studiul producerii barionilor beauty la colidere liniare in optiunea GigaZ\ (partea I I).
99. Simulari Monte Carlo pentru evaluarea performantelor detectorului central de trase incarcate al instalatiei PANDA.
100. Studiul fenomenelor noi in interactii de contact la HERA.
101. Studiul dinamicii reactiilor nucleare si al mecanismelor de producere si dezintegrare a elementelor supra-grele.
102. Proprietati vitroase ale sistemelor mesoscopice (partea I).
103. Proprietati vitroase ale sistemelor mesoscopice (partea II).
104. Testarea cu generator de impulsuri si in conditii reale de lucru folosind surse radioactive a noului CHIP TRD proiectat in cadrul grupului pentru viitorul aranjament experimental CBM (partea I).
105. Testarea cu generator de impulsuri si in conditii reale de lucru folosind surse radioactive a noului CHIP TRD proiectat in cadrul grupului pentru viitorul aranjament experimental CBM (partea I I).
106. Proiectarea,realizarea si testarea cu surse radioactive si in fascicul a unui prototip TRD in arhitectura finala si proiectarea zonei interne a subdetectorului TRD al aranjamentului experimental CBM de la FAIR.
107. Competitia intre dezintegrarea alfa si emisia spontana de clusteri la nuclee supragrele.
108. Testarea cu generator de impulsuri si in conditii reale de lucru folosind surse radioactive a noului CHIP TRD proiectat in cadrul grupului pentru viitorul aranjament experimental CBM (partea a III a).
109. Studii de dinamica moleculara pentru investigarea structurii sistemelor fizice multicomponente(partea I).
110. Studii de dinamica moleculara pentru investigarea structurii sistemelor fizice multicomponente(partea I I).
111. Investigarea fiabilitatii algoritmilor de calcul paralel in mediul Grid.
112. Studiul dependentei de grosimea si de structura diamantului policristalin a raspunsului pc CVD la iradierea in diverse regimuri.
113. Studii privind proprietatile critice ale sistemelor fizice clusterizate – aplicatie pentru cazul multifragmentarii nucleare si al crustei externe a stelelor neutronice.
114. Investigarea dinamicii apei in solutii apoase de alginat de sodiu, la diferite concentratii si temperaturi, folosind imprastierea cvasielastica a neutronilor termici. Studiul proceselor de ionizare si captura electronica in ciocniri ion-atom la energii de ordinul MeV/u. II. Ionizarea multipla.
115. Analiza starilor de tip condensat bozonic alpha populate in reactii de ioni grei la energii de ordinul a citorva zeci de MeV/nucleon.
116. Nedeterminari in rezolutia de moment relativ datorita imprastierii Coulombiene multiple. Analiza Multinivel prin Matricea R cu aplicatii la procese de retroimprastiere.
117. Evaluarea impactului poluarii industriale asupra vegetatiei de cultura prin tehnici nucleare (INAA si PIXE).Evaluari de sectiuni de interes pentru metodele IBA; implementarea sectiunilor evaluate in codurile de calcul dedicate analizei datelor.

118. Masuratori ale fluxului de miuoni cosmici de mare energie in salina de la Slanic Prahova.
119. Studiul spectrului energetic si al tranzitiilor electromagnetice in nucleele 132-Te si 188-W.
120. Dezvoltari experimentale pentru implementarea tehnicii "fast-timing " in cadrul DESPEC / NUSTAR / FAIR.
121. Investigarea provenientei emisiei de neutroni prompti de sciziune prin interferometrie n-n . Masuratori de timpi de viata prin metoda "pluger diferential" adaptata pentru stari populate in reactiile nucleelor exotice.
122. Calculul emisiei de axioni din stele neutronice prin procese de bremsstrahlung.
123. Reactii cu schimb de sarcina in nuclee cu A=64 cu aplicatii in astrofizica.
124. Stabilirea si implementarea metodologiei de arheometrie (partea I).
125. Stabilirea si implementarea metodologiei de arheometrie (partea I I).
126. Reconfigurarea standului RBS pentru a permite utilizarea microfascicolelor de particule alfa.
127. ..Realizarea unui spectrometru de timp cu rezolutie temporala de ordinul sutelor de picosecunde (partea I).
128. Realizarea unui spectrometru de timp cu rezolutie temporala de ordinul sutelor de picosecunde (partea II)
129. Studii privind imbunatatirea si promovarea imaginii institutului de cercetare in domeniul nuclear.
130. Platforma de Informare şi Diseminare.
131. Studii privind realizarea cu succes a transferului tehnologic in domeniul nuclear.
132. Aplicatii ale tomografiei computerizate.
133. Studiul retentiei in carbon a izotopilor hidrogenului din mediu gazos si lichid, folosind metoda AMS .
134. Dezvoltarea si optimizarea acceleratorului de pozitroni monoenergetici.
135. ..Elaborarea documentatiei pentru acreditarea Laboratorului de Etalonari pentru radiatii beta.
136. Participarea la Proiectul EURAMET: Etalonarea absoluta a activitatii si studiul intensitatilor de emisie a radiatiilor gama pentru radionuclidul 64Cu.
137. Elaborarea documentatiei pentru acreditarea Laboratorului de Incercari pentru activitati de evaluare a parametrilor de asigurarea calitatii la instalatiile radiologice utilizate in domeniul medical.
138. Elaborare documentatie tehnico-economica. Avizare ST redactarea a II-a pentru sursa liniara distribuita de Co-60.
139. Realizare modele conceptuale si experimentale privind prelevarea si procesarea probelor biologice necesare cercetarilor si studiilor stiintifice, in conditii de mentinere si pastrare a integritatii proprietatilor acestora.
140. ..Conjugarea BFCA cu macromolecule peptide/proteine/anticorpi si marcarea acestora cu Ga-68 utilizand module automatizate.
141. Realizare stand testare materiale si tehnologii nucleare.
142. ..Evaluarea chimica si biologica preliminara a bioconjugatelor macromoleculare marcate cu Ga-68.
143. Realizarea sisteme de fitrare/trapare efluenti gazosi radioactivi.
144. Evaluarea preclinica a complexului marcat.
145. Reabilitare laborator de cercetari radiochimice ,biochimice si radiobiologice in domeniul stiintelor vietii; dotarea laboratorului.
146. Elaborarea preprocesorului meteo IFIN. Studii de toxicitate a nanoparticulelor . Diversificarea determinarilor de genotoxicitate si citotoxicitate obtinute prin Comet assay (Partea a-II-a).
147. Dezvoltarea de noi metode de masurare, monitorizare si evaluare a arealelor de interes din date in situ si satelitare din punct de vedere radiometric. Dezvoltarea unui sistem complex de monitorizare a poluarii mediului in regiuni afectate de impactul antropogenic din zona Maramures.
148. Dezvoltarea metodelor de etalonare a sistemelor de monitorare a contaminarii interne radioactive prin modelare Monte Carlo. Corelatii intre volumul celular si temperatura in modele cuantice simple ale celulelor procariote. Efect " de vecinatate " (bystander) in modularea raspunsului celular la iradiere – metoda transferului de mediu (partea I).
149. Evaluarea informatizata a impactului eco-sanitar si costurilor dezafectarii instalatiilor nucleare. Constituirea bazei de date privind evolutia in timp a radioactivitatii mediului in zonele de interes si impactul radiologic cumulate. Tehnici nucleare aplicate in studiul stabilirii vitezei de erodare a terenurilor in panta din bazine hidrografice mici.
150. Program tehnologic experimental pentru managementul deseurilor radioactive istorice, a materialelor radioactive rezultate din practici nucleare si dezafectari de instalatii nucleare si radiologice, in containere ECOLRAD.
151. Elaborare plan conceptual de dezafectare Ansamblu Subcritic HELEN (partea I).
152. Elaborare plan conceptual de dezafectare Ansamblu Subcritic HELEN (partea I I).
153. Elaborarea formei finale a proiectului de finantare. Organizarea de actiuni de promovare si diseminare.Elaborarea documentatiei specifice pentru achizitii.
154. Actualizarea Cartii Albe . Studii de piata pentru viitoarele achizitii de echipamente . Organizarea de actiuni de promovare si diseminare.
155. Realizarea documentatiilor de atribuire pentru elementele principale ale infrastructurii de cercetare ELI.

2012 :

156. Studiul proceselor radiative folosind generatori Monte Carlo de tip LO si NLO.
157. Utilizarea PandaGrid la simulari Monte Carlo pentru instalatia PANDA.
158. Realizarea si testarea unui mediu software de lucru pentru studiul ciocnirilor proton-proton la energii ultrarelativiste.
159. Studiul integrabilitatii pentru sisteme dinamice cu simetrii ascunse.

160. Structura si proprietatile de dezintegrare alfa ale nucleelor supra-grele.
161. Studiul seriei de perturbatie a cromodinamicii cuantice pe baza grupului de renormare si a transformarilor conforme in planul Borel.
162. Dinamica pulsurilor laser intense focalizate in plasme de densitati variabile.Analiza interactiei radiatiei electromagnetice cu polarizarea nucleara.
163. .Ecuatia de stare a materiei nucleare asimetrica in izospin.
164. A. Proiectarea zonei intene a primei statii a subdetectorului TRD pentru experimentul CBM de la FAIR; simulari CADENCE ale CHIP-ului FASP folosind distributii de sarcini simulate prin GARFIELD.
B. Studii si cercetari pentru identificarea de noi metode/ tehnologii de realizare a straturilor subtiri multiple cu proprietati complementar-cumulative pentru aplicatii industriale.
165. Studiul rezolutiei in pozitie a prototipului de detector de timp de zbor cu electrozi rezistivi din sticla de inalta rezistivitate (RPC) si electrozi de citire a semnalelor de inalta granularitate . Proiectarea si realizarea unui prototip de detector RPC cu arhitectura optima din punct de vedere performanta/cost pentru aranjamentul experimental CBM de la FAIR
166. Studiul si proiectarea acoperirii optime din punct de vedere performanta/cost cu module compuse din detectori MGMSRPC, respectiv CBM_TRD.Partea I: zona unghiurilor polare mici a subsistemului CBM_TOF pentru experimentele ce se vor desfasura la SIS-100.
167. Modelarea si simularea numerica a sistemelor fizice complexe prin metode de calcul avansat.
168. Sistem de management al performantei in centrul grid RO-07-NIPNE.
169. Realizarea tinte gazoase de heliu.Caracterizarea principalilor parametri ai multidetectorului array de neutroni pentru scintilatori lichizi BC501A si scintilatori de plastic BC400, simulari Monte Carlo.
170. Obtinerea de informatii de timpi de viata si sectiuni eficace pentru lantul astrofizic din zona nucleelor de Sm.Masuratori de eficacitate de detectie cu un sistem pc CVD multistrip sensibil la pozitie, iradiat cu ioni grei la energii < 100MeV/u.
171. Studiul proceselor de ionizare si captura electronica in ciocniri ion-atom la energii de ordinul MeV/u.III. Captura electronica radiativa. Determinarea proprietatilor nucleului atomic cu ajutorul radiatiei laser: modelare de experiment.
172. Definirea nivelului minim necesar de statistica si acuratetea masuratorilor in-beam fast timing in conditii de fond intens.
173. Tranzitii de faza catre materie barionica stranie.
174. Masuratori privind radiatia cosmica de mare energie in laboratorul subteran al IFIN-HH din salina Slanic Prahova.
175. Studiul rezonantelor sub-barierice in reactii de fotofisiune pentru actinide.
176. Experimente in-beam fast timing in fuziune incompleta cu 7Li.
177. Canale cuantice covariante de transmitere a informatiei.
178. Gropi cuantice cu aplicatii in fizica straturilor metalice nanoscopice.
179. Stabilirea si implementarea tehnicilor instrumentale de conservare, caracterizare, autentificare si datare ale obiectelor de patrimoniu.
180. .Implementare si aplicare practica a tehnicilor instrumentale de conservare , caracterizare, autentificare si datare a obiectelor de patrimoniu.
181. Caracterizarea materialelor polimerice la iradiere.
182. Metoda rapida, bazata pe utilizarea pozitronilor, pentru studiu al fenomenului de histerezis in condensarea capilara a lichidelor volatile.
183. Masuratori izoterme ale fenomenului de condensare capilara a gazelor in pori nanometrici.
184. Training in domeniul nuclear; baze de date si de acces bibliografic.
185. Cresterea capacitatii tehnice si operationale a Platformei de informare si diseminare a informatiilor.
186. Dezvoltarea instalatiei automatizate de radiosinteza a FDG in vederea cresterii posibilitatilor de sinteza a altor radiofarmaceutice. Proceduri de lucru.
187. MicroTomograf cu anihilare de pozitroni.
188. Studiul comparativ al producerii radionuclidului Mo-99/Tc-99m prin acceleratoare ciclotron de joasa energie si prin reactii fotonucleare la ELI-NP.
189. Realizarea standului de etalonare a aparaturii dozimetrice in fond ultrascazut dun Mina Unirea –Slanic Prahova.
190. Reabiltarea cladirii Laboratorului de Iradiere cu Radiatii Ionizante (PPCR).
191. Elaborarea documentatiei pentru acreditarea RENAR a Laboratorului μBq de la Slanic.
192. Cercetari in vederea creerii conditiilor de etalonare a sistemelor dozimetrice utilizabile in cadrul proiectului ELI.
193. Evaluarea potentialului radionuclidului Ga-68,β+ emitator in obtinerea de radiofarmaceutice destinate diagnosticului si monitorizarii terapeutice prin imagistica PET (Partea a-II-a).
194. Dezafectare instalatie si utilaje extistente in cadrul laboratorului Tritiu in vederea reamenajarii (partea II).
195. Instalarea, punerea in functiune si obtinerea autorizarii CNCAN pt. sistemul centralizat de monitorizare radiologica a mediului de lucru.
196. Implementare sistem fix de monitorizare a contaminarii personalului expus profesional. Elaborare proceduri de monitorizare radiologica.
197. Caracterizarea biologica si toxicologica a bioconjugatelor marcate cu Ga-68.

198. Studiu privind metode alternative de obtinere a molibdenului -99 (Mo-99) si procesarea radiochimica pentru separarea radioizotopului medical Tc-99m.
199. Studiul alterarii suprafetei compozitelor dentare sub actiunea ionilor grei accelerati in cursul analizelor PIXE si PIGE. Imunosorbenti pe baza de oxizi de Si si de Fe utilizati in tehnica ELISA de dozare a hormonilor steroizi.Tehnici nucleare aplicate in studiul stabilirii vitezei de colmatare a lacurilor de acumulare din bazine hidrografice mici. Studii de toxicitate a nanostructurilor. - Partea I.
200. Modelarea transferului 14C din sol in culturi agricole in sprijinul analizei de impact la depozite de deseuri radioactive. Factori fizico-chimici care influenteaza performantele dozimetrului cu film utilizat in monitorizarea personalului expus profesional la radiatii ionizante.
201. Studii in vederea caracterizarii radiologice a zonei de amplasare ELI-NP.
202. Identificarea si evaluarea metodelor de gestionare a deseurilor radioactive rezultate din procesul de modernizare a instalatiilor STDR.
203. Elaborarea tehnicilor de dezmembrare aplicabile structurilor, sistemelor, echipamentelor si componentelor instalatiilor nucleare.
204. Tehnici si tehnologii de dezafectare a instalatiilor nucleare si radiologice si managementul materialelor rezultate din practici nucleare"/Evaluarea si elaborarea unui program imbunatatit de monitorizare si caracterizare radiologica a Depozitului National de Deseuri Radioactive Baita-Bihor (DNDR) in vederea asigurarii securitatii radiologice a personalului operator, mediului si populatiei .
205. Elaborarea tehnicilor de curatare si decontaminare radioactiva a suprafetelor, folosind acoperiri exfoliabile si de protectie aplicabile in procesul de dezafectare a instalatiilor nucleare.
206. Activitati privind stabilirea colectivelor de cercetare specific activitatilor infrastructurii de cercetare ELI-NP , actualizarea tematicii de cercetare , a specificatiilor tehnice si a documentatiei de atribuire ale echipamentelor majore . Actiuni suport.
207. Studii concept specifice ELI-NP.

2013:

208. Proiectarea si realizarea unui sistem scalabil de achizitie a datelor pentru detectori de gaz.
209. Sistemul de control lent al experimentului PANDA -evluarea solutiilor tehnice pentru controlere I/O compatibile EPICS.
210. Proiectarea si realizarea unui aranjament experimental pentru studiul performantelor detectorilor cu ionizare in gaz MPGD.
211. .Factori de forma hadronici la energii joase.
212. Proprietati de super-renormare ale teoriilor de etalonare.
213. Evolutia formei nucleare de-a lungul lantului izotopic al Platinei.
214. Masele si unghiurile de amestecare ale fermionilor pe baza ruperii dinamice a simetriei electroslabe si a ultimelor rezultate experimentale despre neutrini.
215. Studiul experimental si teoretic al interactiilor la energii relativiste. Partea I: Corectii de "feed-down" ale spectrelor de particule incarcate folosind modele teoretice.
216. Experimentari tehnologice cu instalatia multifunctionala pentru depunerei de straturi subtiri in vid, din dotarea DFH, pentru determinarea parametrilor tehnologici in vederea realizarii straturilor subtiri multiple lubrifiante cu grosime: "superllatice" (g = 1-10nm), nanometrica (g =10-100nm) si micrometrica (g>100nm) , prevazute in cererile de brevet IFIN-HH cu numerele de inregistrare la OSIM: A/00.621; A/00622; A/00623 si A/00729.
217. Studiul si proiectarea acoperirii optime din punct de vedere performanta/cost cu module compuse din detectori MGMSRPC, respectiv HCRTRD a zonei unghiurilor polare mici (50 mrad - 200 mrad) a subsistemelor CBM-TOF si respectiv CBM-TRD.
218. Partea II: zona unghiurilor polare mici a subsistemului CBM-TRD pentru experimentele ce se vor desfasura la SIS-100.
219. Proiectarea ,realizarea si testarea in fascicul de electroni si pioni a unui prototip de detector TRD tip camera multifilara cuplata cu o zona de drift cu electrod de citire a semnalelor cu granularitate ceruta de zona interna a primei statii a subdetectorului CBM-TRD. Simulari CADENCE pentru optimizarea parametrilor chip-ului ASIC FASP in scopul imbunatatirii procesarii semnalului furnizat de prototipul de detector TRD.
220. Structura si reactii nucleare la nuclee exotice (NuPNET-SARFEN): Corelatii de doi nucleoni relevante pentru nuclee de masa medie bogate in protoni.
221. Amenajarea Laboratorului de testare a detectorilor TRD pentru masuratori cu surse radioactive si raze cosmice. Testarea detaliata a prototipului de detector TRD de dimensiune corespunzatoare zonei interne a sub-detectorului TRD al aranjamentului experimental CBM de la FAIR.
222. Proiectarea, constructia si testarea preliminara folosind surse radioactive si raze cosmice a structurii de baza pentru zona interna a CBM_TOF bazat pe celule RPC.
223. Experimentari tehnologice de realizare si caracterizare a straturilor subtiri tribologice de tip multistrat, depuse in vid prin pulverizare magnetron.
224. Structura si reactii nucleare la nuclee exotice (NuPNET-SARFEN) : Corelatiile de imperechere sunt investigate prin studiul largimii de dezintegrare in procesul de emisie bi-protonica.
225. Aplicatii ale metodelor de simulare numerica in fizica starii condensate.
226. Contributii la dezvoltarea infrastructurii de calcul din Europa de Sud-Est.
227. Modelarea sistemelor condensate prin metode de calcul paralel.

228. Persistenta tranzitiei de faza avind ca parametru de ordine densitatea de materie stranie sub efectul de ecranare al electronilor- relevanta pentru evolutia supernovelor ce sufera colaps gravitational. Simulari Monte-Carlo privind posibilitatea extinderii sistemului de detectie WILLI-EAS.
229. .Investigarea unei posibile asimetrii a probabilitatilor de dezintegrare gama in nucleele oglinda 35Cl – 35Ar folosind tehnica in-beam fast timing. Observarea de noi tranziţii gama in nuclee neutronoexcedentare din regiunea N=28.
230. Studiul stabilitatii functie de rata de numarare al performantelor detectorilor LaBr3 (Ce) cu "readout " prin fotomultiplicator rapid.
231. Stari barionice cuasinucleare si efecte de prag in unda p.
232. Rezultate preliminare ale experimentului WILLI-EAS.
233. Teste si masuratori de calibrare la acceleratorul Tandetron de 3 MV in vederea utilizarii acceleratorului ca facilitate pentru caracterizari de materiale de inalta precizie.
234. Caracteristicile cojii de neutroni (neutron skin) extrapolate pentru nuclee bogate in neutroni din studiul imprastierii elastice de nuclee bogate in neutroni (DFT-Carstoiu + Trache).
235. Elaborarea unei versiuni preliminare a Technical Design Report pentru dispozitivul de tip plunger pentru HISPEC/NuSTAR (DFN- Marginean).
236. Cuplajul dintre fotoni si nuclee atomice ultra-relativiste (DFT).
237. Calibrarea energetica a fasciculului de electroni la acceleratorul NewSUBARU-GACKOcu ajutorul radiatiilor gamma obtinute prin retroimprastierea Compton a unui fascicul laser si aplicatiile conexe (DFN).
238. Modificari induse in structura materiei de cimpuri intense de radiatii gamma-defecte de iradiere (Radiation Damage) (DFNA).
239. Estimarea duratei de viata a materialelor in cimp intens de radiatii ionizante (IRASM).
240. Stabilirea si implementarea tehnicilor REP si colorimetrice de caracterizare, autentificare si datare ale obiectelor de patrimoniu.
241. Corelarea tehnicilor spectrale in autentificarea obiectelor de patrimoniu.
242. Aplicarea tehnicilor REP si colorimetrice de caracterizare, autentificare si datare ale obiectelor de patrimoniu.
243. Actualizarea componentei de instruire a platformei; curs online inetractiv.
244. Evaluarea programelor de formare - componenta a modulului de instruire a platformei.
245. Dezvoltarea modulului de diseminare al platformei prin proiectarea unor componente interactive in domeniul nuclear si al laserilor.
246. Folosirea FPGA in sisteme de achizitie rapide.
247. Investigarea statuetelor ceramice din cultura Cucuteni prin tomografie de raze X.
248. Studiu de fezabilitate si dezvoltare experimentala pentru producerea surselor de 22Na de mica activitate la ciclotronul TR-19.
249. Cercetari in vederea cresterii performantelor metrologice ale standului de etalonare aparatura dozimetrica in fond ultrascazut.
250. Cercetari pentru asigurarea conditiilor de participare a IFIN-HH la colaborari internationale in metrologia radiatiilor ionizante.
251. Determinarea parametrilor de calitate ai radiatiilor X utilizate pentru etalonarea aparaturii dozimetrice folosite in domeniul medical (in radiodiagnostic).
252. Participarea la realizarea Programului EURAMET – EMRP, proiectele: JRP ENG08 (Metro Fission) si JRP IND 04 (MetroMetal).
253. Participarea la realizarea EURAMET Project No 1132 (BIPM KCDB-EURAMET R(1)-SX).
254. Validarea de metode de analiza si testare radiofarmaceutice.
255. Testare metode de producere a radioizotopilor medicali.
256. Elaborare documentatie pentru reautorizare CNCAN in urma modificarilor realizate.
257. Implementarea tehnicilor moderne de analiza in domeniul compusilor marcati si a radiofarmaceuticelor.
258. Cercetari in realizarea unor noi compusi radiomarcati cu aplicatii in stiintele vietii.
259. Elaborarea si implementarea procedurilor de decontaminare si caracterizare radiologica a deseurilor cu tritiu.
260. Design experimental pentru iradiere tinte solide la ciclotronul TR-19.
261. .Dezvoltarea metodelor de etalonare a sistemelor de monitorare a contaminarii interne radioactive prin modelare Monte Carlo. Corelatii intre volumul celular si temperatura in modele cuantice simple ale celulelor procariote. Efect " de vecinatate " (bystander) in modularea raspunsului celular la iradiere – metoda transferului de mediu (partea I I).
262. Evaluarea si caracterizarea radiometrica in door a unor mine saline din nordul Romaniei.
263. Studii preliminare privind radioactivitatea mediului in zone de depozitare a sterilului rezultat din activitatile chimice industriale.
264. Metode si software pentru procesarea datelor si realizarea hartilor sinoptice de situatie radiologica si meteorologica provenind de la retelele de masurare cu geometrie neregulata.
265. Evaluarea si stabilirea principiilor unei noi tehnologii de tratare a efluentilor radioactivi lichizi utilizand metode moderne filtrare, ultrafiltrare si osmoza inversa, in vederea asigurarii securitatii radiologice a personalului operator, mediului si populatiei.
266. .Procedee de decontaminare radioactiva a componentelor electrice si a sistemelor de ventilatie aferente instalatiilor nucleare aflate in procesul de dezafectare.

267..Elaborarea planului conceptual pentru dezafectarea Depozitului de Combustibil Nuclear Uzat.
268. Tehnici si tehnologii de dezafectare a instalatiilor nucleare si radiologice si managementul materialelor rezultate din practici nucleare"/Integrarea noilor metode de tratare a efluentilor radioactivi lichizi in fluxul tehnologic de management a deseurilor radioactive din STDR-IFIN-HH.
269. Masurarea sectiunilor fotoneutronice pentru nuclee de interes din astrofizica si inginerie nucleara.
270. Elaborarea TDR pentru experimente dedicate studierii sistemelor dozimetrice utilizabile in cadrul proiectului ELI-NP. (Bercea S.).
271. TDR pentru aranjament experimental "Teste de anduranta echipamente electronice pentru aplicatii spatiale".
272. Tehnical Design Report conceptual pentru un sistem scalabil de achizitie a datelor dedicat experimentelor de la ELI-NP.

2014:

273. Studiul producerii bosonului W' in ciocniri p-p la LHC.
274. Studiul modelului G(221) folosind stari finale ce contin jeturi,leptoni si energie transversala lipsa.
275. Studiul metodelor de procesare paralela a datelor experimentale folosind configuratiile NFS,XROOTD si RFIO.
276. Studiul producerii particulelor supersimetrice la ECM=8TeV in experimentul ATLAS de la LHC pentru stari finale compuse din jeturi si doi leptoni de acelasi semn sau trei leptoni.
277. Constrangeri asupra parametrilor de masa ai neutrinilor deduse din analiza dezintegrarii beta duble.
278. Descrierea corelatiilor de pairing proton-neutronice izovectoare si izoscalare in nuclee cu N=Z.
279. Solutii analitice ale unor clase de ecuatii transcendentale ale mecanicii cuantice cu aplicatii in nanofizica.
280. Fisiunea spontana a nucleelor supragrele.
281. Straturi subtiri tribologice nanostructurate.
282. Structura si reactii nucleare la nuclee exotice (NuPNET-SARFEN): Efecte ale violarii simetriei de izospin si ale coexistentei de forma la nuclee de masa medie.
283. Simulari de impedante de linii de transmisie RPC. Proiectare si realizare RPC in arhitectura de stripuri cu 100 Ohm impedanta.
284. Teste de laborator folosind surse radioactive si raze cosmice a prototipurilor de detectori de radiatie de tranzitie (TRD) pentru rate mari de numarare dezvoltate pentru experimentul CBM de la FAIR.
285. Optimizarea arhitecturii modulelor din zona interna a subdetectorului de timp de zbor (ToF) pentru CBM; proiectarea structurii mecanice si a conexiunilor electronice de transport a semnalelor.
286. Studiul sistematic al lungimii de coerenta in sisteme nucleare .
287. Studiul dependentei parametrilor functionali ai detectorilor RPC si TRD pentru CBM, functie de fluxul de particule incidente".
288. SARFEN Studiul lungimii de coerenta de cuartet in nuclee.
289. Metode computationale avansate pentru studiul sistemelor cuantice mezoscopice.
290. Sisteme avansate de gestiune a fluxului de date in centrul grid DFCTI.
291. Noi modele de calcul de dimensionalitate redusa pentru descrierea condensatelor Bose-Einstein.
292. Cresterea sigurantei si securitatii infrastructurii IT. Instrumente si materiale pe suport digital pentru diseminarea rezultatelor cercetarii.
293. Investigarea proprietăţilor materiei nucleare situate în crusta proto-stelelor neutronice şi a pertinenţei formelor tradiţionale ale ecuaţiei de stare.
294. Studiul colectivităţii stărilor excitate de joasă energie în nucleul 134Ce prin determinarea experimentală a probabilităţilor de tranziţie în banda yrast.
295. Monitorizarea functionarii unui detector de raze cosmice.
296. Analiza si descrierea corespunzătoare a funcţiilor de intensitate ale tranziţiilor electromagnetice dipolar-electrice la energii joase.
297. Studiu privind posibilitatea investigarii neutrinilor de mare energie in mina de sare de la Slanic Prahova.
298. Determinarea limitei de masurare de sectiuni de reactie pentru astrofizica nucleara prin spectrometrie gama in fond de radiatii ultrascazut.
299. Investigarea corelatiilor biparticula in nuclee exotice.(DFT).
300. Masuratori inclusive si exclusive de breakup a C-9 in cimpuri nucleare si coulombiene pentru determinarea factorului astrofizic S_18. (DFN).
301. Stari magnetice nucleare colective ale modului de forfecare (DFT).
302. Studiu privind activarea materialelor componente ale infrastructurii ELI-NP si planificari de experimente in domeniul testarii comportarii in campuri intense gamma si de neutroni a materialelor destinate inca din faza de proiect pentru noi instalatii radiologice si nucleare; program de verificari periodice si metode de punere in evidenta a activarii structurii, sistemelor, echipamentelor si componentelor(SSEC) de la ELI-NP, stabilirea gradului de rezilienta a SSEC. (DDR).
303. Prototipuri pentru instrumente de diagnoza a sistemului de fascicul gamma (GBS) al ELI-NP (DFN).
304. Elaborarea unei propuneri de program de studiu al comportarii materialelor de transmisie optica in cimpuri intense de radiatii gama folosind ELI-NP (DFNA).
305. Studii privind producerea de radioizotopi medicali prin reactii nucleare (γ,n) (DRMR).
306. Descrierea computationala a rezonantelor pygmy si gigant dipolare (DFCTI).

307. Realizare aranjamente experimentale in domeniul efectelor induse de campuri intense de radiatii asupra materialelor si echipamentelor cu utilizari speciale (DRMR).
308. Evaluarea preliminara a expunerii publice la emisiile atmosferice radioactive ale sistemului ELI-NP (DFVM).
309. Masurarea in fond de radiatii ultrascazut a produsilor cu timp de viata de ordinul zilelor rezultati din activare in urma interactiei campurilor foarte intense cu nucleele si materia nucleara.(DFVM).
310. Simularea efectelor biologice induse de campurile complexe de radiatii (CPR).
311. Stabilirea metodelor de caracterizare prin analiza termica si spectrometrie de masa pentru estimarea duratei de viata in camp intens de radiatii ionizante la experimentele ELI-NP. (IRASM).
312. Efecte de polarizare in atomi si nuclee in campuri electromagnetice intense (DFT).
313. Finalizarea TDR – Securitate si Dozimetrie pentru Radioprotectie pentru ELI–NP (inclusiv Laboratorul de Dozimetrie)”(CPR).
314. Surse mono-energetice de protoni si neutroni rapizi bazate pe laseri de mare putere (DFN).
315. Studii preliminare pentru materiale de transmisie optica iradiate cu fascicule alfa (DFNA).
316. Stabilirea tehnicilor de caracterizare microbiologica a artefactelor si a influentei contaminarii biologice asupra autentificarii si datarii obiectelor de patrimoniu cultural.
317. Stabilirea tehnicilor de termoluminescenta si luminescenta stimulata optic pentru caracterizarea, autentificarea si datarea unor marmure de interes arheologic.
318. Stabilirea tehnicilor de caracterizare prin spectrometrie de masa a artefactelor si utilizarea chemometriei pentru autentificarea si datarea obiectelor de patrimoniu cultural.
319. Implementarea tehnicilor de termoluminescenta si luminescenta stimulata optic pentru caracterizarea ,autentificarea si datarea unor marmure de interes arheologic.
320. Cresterea atractivitatii activitatilor de formare si informare prin integrarea activa in cadrul platformei a unor componente interactive.
321. Extinderea componentei de diseminare prin dezvoltarea unor materiale informative inovative din domeniul surselor de radiaţii.
322. Dezvoltarea componentei de diseminare prin integrarea activa in cadrul platformei a unor componente inovative interactive din domeniul surselor radioactive.
323. Evaluarea eficientei platformei de informare prin monitorizarea parcursului utilizatorilor prin materialele informative dezvoltate.
324. Studii arheometrice pe artefacte din sticla din perioada bizantina.
325. Detector de poziţie pentru NICA (Nuclotron based Ion Collider fAcility).
326. Folosirea fascicolelor de particule încărcate în modificarea proprietăţilor nanostructurilor.
327. Spectrometria de masa cu plasma cuplata inductiv. Aplicatii in determinarea concentratiilor de parti per miliard.
328. Aplicatii ale ablatiei laser cuplata cu spectrometria de masa.
329. Modernizarea si extinderea caracterizarii standului de etalonare in fond ultrascazut de la Slanic Prahova in vederea acreditarii RENAR.
330. .Extinderea posibilitatilor de etalonare pe standul de fond ultrascazut de la Slanic, prin utilizarea unui numar de surse radioactive noi furnizate de la CEA-LNHB (Franta) conform prevederilor Proiect ENV57 EURAMET in care IFIN-HH prin CMRID este partener.
331. Studiul impactului unor factori de influenta si a geometriei de iradiere asupra valorilor H obtinute in fascicule de radiatii gamma de diverse energii pe standul de etalonare in fond ultrascazut,in vederea asigurarii cerintelor pentru realizarea proiectului EURAMET,ENV 57 la care IFIN-HH prin CMRID este partener finantat.
332. Implementarea in cadrul CPRLAB a unor noi tehnici si metode de analiza a surselor si deseurilor cu tritiu.
333. Optimizarea procedeelor de marcare cu F-18 a biomoleculelor utilizand module de sinteza automatizate.
334. Realizare stand modular destinat sintezei compusilor marcati si surselor cu tritiu.
335. Dezvoltarea de noi aplicatii medicale la ciclotronul TR-19.
336. Dezvoltarea de noi aplicatii medicale la ciclotronul TR-19.
337. Studiu privind adaptarea infrastructurii existente la camerele fierbinti DRMR-CPR, in vederea dezvoltarii de aplicatii cu surse radioactive inchise, cu activitati mari.
338. Studii experimentale referitoare la noi solutii de decontaminare "Camere Fierbinti",incinte protejate si personal si elaborarea de protocoale de decontaminare in vederea imbunatatirii masurilor de securitate radiologica.
339. Proiectarea sistemului de miscare automata a detectorilor de particule pentru camera de reactie destinata studiilor mecanismelor de reactie si astrofizicii nucleare.
340. Realizarea sistemului de miscare automata a detectorilor de particule pentru camera de reactie destinataă studiilor mecanismelor de reactie şsi astrofizicii nucleare.
341. Proiectarea şsi realizarea unui suport multiplu pentru tinte subtiri dedicat analizelor PIXE (ce include cupaă Faraday pentru citirea curentului de fascicul dupaă trecerea acestuia prin ţintă).
342. Dezvoltarea unui sistem de masurare a probelor arheologice prin metode nedistructive utilizand fascicule accelerate de particule prin extragerea fasciculului in aer.
343. Proiectarea si simularea unui tun electronic destinat dispozitivelor de sudura in fascicul de electroni (simularea diferitelor geometrii cu programe de optica ionica si proiectarea utilizind programe CAD a prototipului).

344. Determinarea tritiului total, tritiului din apa libera din tesuturi si tritiului legat organic din tesuturi animale si vegetale, si din compartimente de mediu. Procesarea fizico-chimica automata a peliculelor fotografice utilizate in dozimetria de personal. Performante si limitari.
345. Model si software pentru evaluarea impactului radiologic al dispozitivelor de dispersie a radioactivitatii.
346. Efect "de vecinatate" (bystander) in modularea raspunsului celular la expunerea la agenti fizici si chimici. Efectul radiatiei ionizante asupra mecanismului de actiune al peptidelor antimicrobiene (AMP) la nivelul membranelor lipidice.
347. Determinarea carbonului-14 total si in fractii organice si anorganice din tesuturi animale si vegetale, si din compartimente de mediu. Studii si evaluari privind calibrarea in energie si eficacitate a unui sistem de spectrometrie alfa utilizand surse standard de actinide.
348. Dezvoltarea metodelor de estimare a incorporarii si a dozei efective pe baza datelor de monitorizare in vivo si in vitro.
349. .Elaborarea Planului detaliat de dezafectare a DCNU.
350. Implementarea tehnicii de caracterizare chimica prin spectrometrie atomica a deseurilor radioactive lichide apoase. (STDR).
351. Elaborarea tehnologiei de dezafectare a degazorului din circuitul primar al RN VVR-S.
352. Reducerea volumului deseurilor radioactive solide de joasa si medie activitate prin utilizarea tehnologiei de supercompactare.
353. Evaluarea prin simulare Monte Carlo a eficacitatii surselor plane pentru radionuclizi emitatori beta.(DDR).
354. Studiu privind stocarea in conditii de Securitate radiologica a deseurilor radioactive de aluminiu si grafit rezultate din dezafectarea reactorului.(DDR).
355. Tratarea prin metode combinate de filtrare, ultrafiltrare si osmoza inversa a efluentilor radioactivi aposi de joasa si medie activitate.(DMDR).
356. Realizare studiu de fezabilitate solutie de rezerva climatizare cladiri aferente investitiei ELI-NP (Extreme light Infrastructure -Nuclear physics).

2015 :

357. Studiul metodelor de imbunatare a performantelor de transfer de date a centrului RO-02-NIPNE in reteaua GRID a experimentului ATLAS.
358. Implementarea sistemului de monitorizare locala a centrului RO-02-NIPNE din sistemul GRID al experimentului ATLAS.
359. Studiul performantei de calibrare a jeturilor masurate de experimentul ATLAS folosind evenimente cu topologie foton-jet.
360. Studiul producerii unor fenomene fizice noi in experimentul ATLAS de la LHC folosind metode independente de model.
361. Imbunatatirea retelei locale de comunicatii a centrului de date ATLAS din DFPE.
362. Solutii noi pentru compactificari ale teoriei M in 3 dimensiuni cu supersimetrie N=2.
363. Excitatii colective in nanostructuri si dependenta proprietatilor fizice de temperatura.
364. Calculul proprietatilor neutronilor de sciziune emisi la fisiunea de joasa energie folosind un model dependent de timp.
365. Heterojonctiuni semiconductoare in camp laser.
366. Lagrageeni triviali in formalismul cauzal al teoriei cuantice a cimpurilor.
367. Proiectarea modulului M2 pentru zona interna a subdetectorului TOF al CBM in vederea executiei.
368. Testarea in fascicul a detectorului RPC de dimensiuni reale pentru zona interna a subdetectorului CBM-TOF folosind amplificatori/discriminatori PADI si convertori TRB bazati pe FPGA.
369. Masuratori de laborator pentru determinarea rezolutiei de pozitie a detectorului TRD dezvoltat pentru experimentul CBM de la FAIR folosind dispozitivul de scanare automata din dotarea DFH.
370. Proiectarea si testarea sistemului de distributie de gaze pentru operarea prototipurilor de detectori realizati in DFH pentru mari colaborari internationale la care DFH este partener.Realizarea de configuratii experimentale pentru teste in fascicul.
371. Cercetari privind realizarea si caracterizarea straturilor subtiri tribologice, obtinute prin pulverizare magnetron din tinte de Ti, TiB2 si WC.
372. Contributii la studiul fenomenelor de transport electric in fulgide.
373. Investigarea proprietatilor alotropilor grafenei prin metode de calcul de inalta performanta.
374. Efectul impuritatilor metalice asupra proprietatilor termoelectrice ale nanopanglicilor hibride grafena-nitrura de bor.
375. Realizarea Centrului National de Operatiuni Grid.
376. Rezonante de canal in ciocniri cuantice.
377. .Proiectarea si testarea electronicii front-end pentru experimental WILLI-AIR.
378. Studiul rezonantei PDR (Pygmy Dipole Resonance) in 68Ni produs în reacţii de fragmentare la energii intermediare.
379. Implementarea de tehnici avansate de investigare a materialelor la acceleratorul Tandetron de 3 MV.
380. Implementarea de tehnici avansate de investigare a materialelor la acceleratorul Tandetron de 3 MV.
381. Dezvoltari experimentale si metodologice si masuratori de reactii induse de neutroni.

382. Magicitate departe de valea de stabilitate si impactul ei asupra ratelor de captură electronică în stelele ce sufera colaps gravitational.
383. Masuratori directe de astrofizica nucleara pentru reactii de ardere a He in stele. DFN.
384. Timpii de viata alpha si de fisiune spontana la nucleele supragrele.(DFT).
385. Investigarea structurii nucleelor par-pare prin emisie de particule alfa.(DFT).
386. Instalarea unui ansamblu de detectori LaBr3(Ce) în planul focal al separatorului cu gaz RITU de la University of Jyvaskyla (DFN).
387. Dezvoltarea capacitatilor de realizare de ansambluri experimentale la acceleratoarele tandem din IFIN-HH (Tandem).
388. Studiul colectivitatii nucleare in zona izotopilor bogati in protoni ai gadoliniului prin masurare de timpi de viata in 150Gd. Dotarea unei linii de fascicul dedicata pentru fixica nucleara la energii joase si astrofizica nucleara la acceleratorul Tandetron 3 MV .(D. F. N.).
389. Analiza inducerii de defecte in sticlele optice prin iradiere gamma folosind masurari on-line cu fascicule.(DFNA).
390. Studii numerice preliminare asupra modurilor colective in materia nucleara. Explorari teoretice.(CTIC).
391. Investigatii asupra dinamicii semi-clasice a moleculelor in cimpuri laser. (DFT).
392. Realizare si testare camera multifunctionala de simulare conditii specifice spatiului cosmic.(DRMR).
393. Studii numerice preliminare asupra modurilor colective in materia nucleara. Investigatii numerice.(CTIC).
394. Dezvoltarea de detectori activi pentru spectroscopia de neutroni rapizi in experimente cu laseri de mare putere .(DFN).
395. Realizare teste reprezentative si definirea protocloalelor experimentale pentru viitoarea platforma ELI NP 9(DRMR).
396. Nivelul de referinta a radioactivitatii mediului in zona de influenta a ELI-NP (DFVM).
397. Experimentarea metodelor de caracterizare prin analiza termica si spectrometrie de masa pentru determinarea puritatii matricilor organice si anorganice la experimentele ELI-NP (IRASM).
398. Fizica nucleara computationala pe infrastructuri de calcul cu procesare omogena si neomogena.(CTIC).
399. Influenta factorului entropic asupra concentratiei defectelor in materiale oxidice ,utilizate pentru componente comerciale,ce opereaza in zone afectate de cimpuri gamma intense .(DFNA).
400. Studii in vederea asigurarii si implementarii unor solutii tehnice adecvate pentru realizarea ecranarii electromagnetice a aparaturii electronice folosite in experimentele la CETAL sau alti laseri de mare putere (DFN).
401. Evaluarea impactului radiologic combinat al emisiilor atmosferice radioactive ale sistemului ELI si surselor curente de emisii atmosferice radioactive asociate instalatiilor nucleare ale IFIN-HH, asupra expunerii publice.(DFVM).
402. Rezultate preliminare privind utilizarea unor meteriale oxidice de tip sticla in estimarea dozelor de radiatii gamma (DFNA).
403. Cloud computing pentru fizica nucleara computationala (CTIC).
404. Marimi conservate de ordin superior pentru sisteme in cimpuri de radiatii (DFT).
405. Stabilirea metodelor de studiu a efectelor post iradiere prin rezonanta electronica de spin in scopul estimarii duratei de viata in camp intens de radiatii ionizante la experimentele ELI-NP (IRASM).
406. Studii privind caracterizarea cimpurilor si fasciculelor de radiatii gamma utilizind camera de interactie multifunctionala pentru simularea conditiilor specifice spatiului cosmic (DRMR).
407. Determinarea distributiei energetice a ionilor accelerati cu laseri de mare putere. Calibrarea raspunsului filmelor radiocromice cu fascicule de la acceleratorul Tandem.
408. Implementarea tehnicilor de spectrometrie de masa si spectroscopie de infrarosu si Raman pentru caracterizarea, autentificarea si datarea unor marmure de interes arheologic.
409. Intercorelarea tehnicilor (RES, TL, OSL, ICP/MS, FT-IR si FT-Raman) utilizate in caracterizarea, autentificarea si datarea unor marmure de interes arheologic.
410. Implementarea tehnicilor de caracterizare microbiologica a artefactelor de patrimoniu cultural.
411. Stabilirea tehnicilor pentru caracterizarea efectelor in timp ale iradierii asupra documentelor pe suport de hartie.
412. Dezvoltarea unor instrumente de evaluare a gradului de informare a publicului vizitator al platformei.
413. Studiu pilot privind nivelul de informare al vizitatorilor platformei.
414. Extinderea continutului platformei prin localizarea materialelor de diseminare elaborate de organizatii internationale.
415. Proiectarea unui curs pilot privind justificarea expunerilor medicale la radiatii ionizante in radiodiagnostic.
416. Studiul membranelor polimerice folosite in celulele de combustie prin spectroscopia de pozitroni.
417. Studii de metalurgie a argintului antic folosind metoda SR-XRF.
418. Analize compozitionale pe ceramica bizantina din zona Dobrogei.
419. Studii si masuratori preliminare in vederea obtinerii izotopului 211At la acceleratorul de particule de tip ciclotron U120.
420. Aspecte privind efectul Weber si modulatia de semnal in detectia neutrinilor solari; Generalizari.
421. Evaluarea datelor nucleare de dezintegrare pentru radionuclidul Fe-52.
422. Executie/testare iradiator si modificare stand de etalonare din Laboratorul de etalonare de fond ultrascazut (Slanic-Prahova) conform ultimelor cerinte din proiectul ENV 57.

423. Validarea sistemului si metodei de masurare a activitatii de suprafata pentru surse emitatoare α si β prin participarea la Compararea internationala CCRI(II)-S10 LASCE.
424. Determinarea caracteristicilor radiologice si metrologice ale noului stand de etalonare a dozimetrelor/debitmetrelor in fond ultrscazut, conform livrabilei nr. 3.3.6 din proiect ENV 57 (Cofinantare proiect european ENV 57).
425. Experimentari pentru realizarea simularilor prin metoda Monte Carlo, privind spectrele radiatiilor gama produse cu iradiatorul din laboratorul de fond ultrascazut.
426. Dezvoltarea de metodologii specifice caracterizarii deseurilor solide cu 14-C.
427. Validarea fluxului tehnologic pentru prepararea radiofarmaceuticelor destinate testarii clinice.
428. Imbunatatirea tehnologiei de realizare a surselor radioactive inchise si efectuarea de teste specifice.
429. Realizare facilitati si identificare protocoale experimentale privind caracterizarea radiologica a grafitului iradiat.
430. Imbunatatirea functionalitatii echipamentelor acceleratorului ciclotron TR19 pentru cresterea fiabilitatii si a sigurantei in exploatare.
431. Caracterizarea radiologica a materialelor rezultate din practici nucleare si proiectarea de noi activitati cu radioizotopi medicale.
432. Imbunatatirea parametrilor sursei de ioni de la Acceleratorul Tandetron de 1MV.
433. .Proiectarea unui sistem microfascicul pentru analize de mare sensibilitate pentru alcatuirea de harti elementale.
434. Sudii preliminare in vederea realizarii unui centru de Hadronoterapie in Romania.
435. Proiectarea unui ansamblu experimental pentru detectia de particule la acceleratorul Tandetron de 3 MV, cu scopul extinderii capacitatilor experimentale in domeniul astrofizicii nucleare.
436. Studii in vederea evaluarii radiometrice a reziduurilor de fosfogipsuri in areale industriale istorice.
437. Cresterea calitatii observatiilor meteorologice la IFIN-HH.
438. Studii preliminare de biofizica moleculara in regim unimolecular (Single Molecule) de "Tethered particle motion" pentru identificarea efectelor de legare ADN si sinapsare implicate in procesul recombinarii genice V(D)J.
439. Radionuclizi gama emitatori in factori de mediu din zona Dunarii si Marii Negre.
440. Faze solide pe baza de nanoimunosorbenti de SiO2 folosite in caracterizarea antiserurilor antipesticid utilizate in tehnica ELISA de dozare a pesticidelor din mediu.
441. Elaborarea tehnologiei de dezafectare a canalelor orizontale ale RN VVR-S - DDR.
442. Aplicarea principiilor ALARA in elaborarea si implimentarea programului de radioprotectie pe fluxurile de tratare a deseurilor radioactive nou implementate STDR.
443. .Elaborarea tehnologiei de demolare a protectiei biologice a RN VVR-S- DDR.
444. Dezvoltarea metodei de analiza a probelor de apa prelevate in cadrul programului de monitorizare a mediului la DNDR-Baita, Bihor prin masuratori alfa-beta globale STDR.
445. Elaborarea ecuatiilor integrale pentru eficacitatea surselor de suprafata mare emitatoare beta si a eficacitatii de detectie- DDR.
446. Metoda si program de calcul pentru determinarea activitatii surselor de suprafata mare emitatoare beta (DDR).
447. Elaborarea tehnologiei de dezafectare a coloanei termice a RN VVR-S (DDR).
448. Studii privind conditionarea prin cimentare a concentratelor radioactive rezultate in procesul de tratare a deseurilor radioactive lichide apoase, in vederea depozitarii finale (STDR) .
449. Studii privind retinerea ionilor de cesiu din deseuri radioactive apoase utilizand ferocianura de nichel depusa pe silicagel (STDR).

2.1. Descrierea activităţilor

Activitatile desfasurate de-a lungul anilor in cadrul fiecarui obiectiv, fiecarui proiect si fiecarei faze, sunt descrise in Rapoartele de activitate a fazelor si Rapoartel anuale. Nu le putem repeta aici. Ele au fost, in principal:

- Cercetari teoretice si experimentale de fizica subatomica: fizica nucleara, fizica particulelor elementare, astrofizica nucleara si de particule; de fizica sistemelor microscopice; cercetari de fizica matematica.
- Cercetari fundamentale sau aplicative din domeniile stiintelor mediului si ale vietii.
- Aplicatii ale metodelor fizicii nucleare pentru parteneri economici sau sociali.
- Dezvoltare de aparatura si instalatii experimentale pentru experimente la instalatiile proprii sau la mari facilitati internationale de fizica nucleara.
- Nu in ultimul rand, au fost stabilite directiile principale si mijloacele tehnice de realizare a marelui proiect european ELI-NP pe care institutul nostru il implementeaza incepand din 2012.

2.2. Proiecte contractate

Cod obiectiv	Nr. proiecte contractate	Nr. proiecte finalizate	Valoare (mii lei)		Nr. personal	
			Total	2015	Total	Studii superioare
PN 09 37 01	**8**	**8**	161.144.404	27.427.720	180	163

PN 09 37 02	**7**	**7**	62.474.234	10.976.035	138	111
PN 09 37 03	**2**	**2**	40.178.233	6.229.688	71	38
PN 09 37 04	**1**	**1**	15.755.530	0	82	72
Total:	**18**	**18**	**279.552.401**	**44.633.443**	**471**	**384**

2.3 Situatia centralizata a cheltuielilor privind programul nucleu : Perioada 2009-2015 :

PROGRAM NUCLEU 2009-2015

PN 09 37	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**TOTAL**
Contractat	30,708,600	41,574,479	43,672,765	39,951,760	38,458,996	41,744,248	44,744,250	**280,855,098**
Realizat	30,662,560	41,541,845	43,314,241	39,650,725	38,133,666	41,615,921	44,633,443	**279,552,401**

Categorie de cheltuieli	Estimativ	Efectiv
I. Cheltuieli directe:	**139,202,257**	**128,791,853**
1. Cheltuieli de personal:	117,965,118	115,133,448
1.1. Cheltuieli din care:		
- cu salariile;	112,086,906	111,520,906
1.2 Alte cheltuieli de personal total	5,878,212	3,612,542
din care:		
a) deplasări în ţară;	93,701	286,067
b) deplasări în străinătate;	5,784,511	3,326,475
2. Cheltuieli materiale şi servicii	21,237,139	13,658,405
din care:		
2.1. Materii prime şi materiale;	8,969,508	5,425,700
2.2. Lucrări şi servicii executate de terţi;	12,267,631	8,232,705
II. Cheltuieli indirecte: Regia	**93,078,351**	**96,009,139**
III. Dotări independente şi studii pentru obiective de investitii proprii total	**48,574,489**	**54,751,409**
din care:		
1. Echipamente pentru cercetare – dezvoltare;	40,252,157	35,289,906
2. Mobilier şi aparatura birotica;	545,904	3,913,580
3. Calculatoare electronice şi echipamente periferice;	7,726,428	15,497,916
4. Mijloace de transport	50,000	49,997
TOTAL (I+II+III)	**280,855,098**	**279,552,401**

Buget sintetic al PN 09 37

Nr. obiective	**Nr. proiecte propuse/ finalizate**	**Buget program [lei]**						
		2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Obiectiv 1	**8/8**	**18.523.119**	**19.445.222**	**23.879.073**	**21.554.003**	**24.749.596**	**26.144.631**	**27.538.527**
Obiectiv 2	**7/7**	**6.987.572**	**8.419.661**	**10.086.799**	**8.886.273**	**7.756.122**	**9.544.988**	**10.976.035**
Obiectiv 3	**2/2**	**5.197.909**	**5.729.558**	**6.484.745**	**5.653.266**	**5.128.438**	**5.754.629**	**6.229.688**

Obiectiv 4	**1/1**	**-**	**7.980.038**	**3.222.148**	**3.858.218**	**824.840**	**300.000**	**-**
TOTAL	**18/18**	**30.708.600**	**41.574.479**	**43.672.765**	**39.951.760**	**38.458.996**	**41.744.248**	**44.744.250**

3. Analiza stadiului de atingere a obiectivelor programului

Programul si-a atins obiectivele propuse, daca se considera si factorul finantare acordata raportat la finantarea ceruta initial si apoi la inceputul fiecarui an de prelungire. Cercetarile experimentale au fost facute fie cu echipamentul si la instalatiile din institut, dar si la instalatii mari din tari cu care avem colaborari. Cercetarile teoretice au combinat deasemeni efortul strict local cu cel facut in colaborari internationale. IFIN-HH si-a indeplinit toate obligatiile care ii revin prin lege sau reglementari nationale in domeniul nuclear. Programul Nucleu a fost deasemeni un factor important in imbunatatirea infrastructurii de cercetare existenta in institut pentru acele echipamente care nu sunt finantate prin Programul de Instalatii de Interes National. Finantarea prin PN a fost importanta pentru fazele de pregatire a implementarii programului european ELI-NP.

4. Prezentarea rezultatelor

4.1. Rezultate concretizate în studii, proiecte prototipuri (produse), tehnologii, …….., alte rezultate:

Denumirea proiectului	Tipul rezultatului	Efecte scontate
PN 09 37 01 03		
Fizica starilor extreme ale materiei, a proprietatii si dinamicii acestora	**2009** **Faza 1** - Structura analogilor A=82 si efecte de rupere a simetriei de isospin asupra dezintegrarii beta Fermi superpermisa (Partea I)	*Se studiaza efectele violarii simetriei de izospin asupra dezintegrarii beta Fermi suprapermise a starii fundamentale a 82Nb la 82Zr. Rezultatele asupra ramurilor de dezintegrare beta analoage ca si ne-analoage vor fi obtinute self-consistent in cadrul* abordarii complexe "Excited Vampir". Se vor face predictii conform carora dezintegrarea beta 82Nb la 82Zr catre primele stari excitate 0+ cu tarie semnificativa coexista cu dezintegrarea suprapermisa. Structura si proprietatile electromagnetice ale starilor analoage si ne-analoage cu spini josi si inalti in 82Nb si 82 Zr vor fi comparate cu datele experimentale disponibile.
	Faza 2 - Proiectarea si realizarea unui prototip de detector de timp de zbor cu electrozi rezistivi, de inalta rezolutie temporala, pentru rate mari de numarare.	Se proiecteaza si realizeaza un prototip de detector de timp de zbor cu structura cu spatii multiple si granularitate ridicata, cu citire diferentiala (semnalele se citesc atat de pe electrodul central (anod) cat si de pe electrozii exteriori (catozi)).
	2010 **Faza 3** - Activitati de calibrare a datelor experimentale obtinute cu configuratia completa 4 a detectorului CHIMERA: experimentul ISOSPIN(partea I)	Se participa, folosind infrastructura de calcul a grupului nostru la activitati de calibrare a datelor experimentale obtinute in experimentul ISOSPIN si anume: timp de zbor , ΔE-E si particule usoare, in scopul crearii de DST-uri

		necesare analizei datelor experimentale.
	Faza 4 - Pachet de programe de analiza si interpretare a datelor de la experimentul ALICE	Vor fi implementate si dezvoltate programe pentru analiza datelor experimentale privind fenomenele de curgere colectiva (“flow”) la energii ultra-relativiste si programe pentru descrierea fenomenelor observate pornind de la geometria si dinamica ciocnirii. In acest fel va fi realizat cadrul necesar abordarii problemelor de fizica de interes pentru partea romana din colaborarea ALICE prin analiza datelor experimentale ce vor fi accesate folosind aranjamentul experimental ALICE odata cu intrarea in functiune a LHC .
	2011 **Faza 5** -Testarea cu generator de impulsuri si in conditii reale de lucru folosind surse radioactive a noului CHIP TRD proiectat in cadrul grupului pentru viitorul aranjament experimental CBM. (Partea I)	CHIP-ul a fost proiectat si realizat in tehnologie CMOS 0.35 microni si este destinat ratelor mari de numarare pana la 300.000 pulsuri/sec specifice detectorului TRD din cadrul experimentului CBM. Vor fi testate caracteristicile acestuia folosind generatorul de impulsuri . Se studiaza structura, dezintegrarea beta Gamow-Teller si emisia de neutroni intarziati beta la nuclee cu A~100 relevante pentru astrofizica prin metode dincolo de campul mediu.
	Faza 2- "Testarea cu generator de impulsuri si in conditii reale de lucru folosind surse radioactive a noului CHIP TRD proiectat in cadrul grupului pentru viitorul aranjament experimental CBM.(Partea II)	CHIP-ul a fost proiectat si realizat in tehnologie CMOS 0.35 microni si este destinat ratelor mari de numarare pana la 300.000 pulsuri/sec specifice detectorului TRD din cadrul experimentului CBM. Vor fi testate caracteristicile acestuia folosind semnale reale livrate de detector folosind surse radioactive si fascicul de electroni si pioni.

	Faza 3- Proiectarea, realizarea si testarea cu surse radioactive si in fascicul a unui prototip TRD in arhitectura finala si proiectarea zonei interne a subdetectorului TRD al aranjamentului experimental CBM de la FAIR	Scheme de proiectare si executie, componente mecanice, protip detector asamblat, rezultate teste cu surse radioactive . Calcule de viteze de drift si timpi de drift utilizand programul Garfield./ Raport de testare; raport de etapa; prezentari meeting CBM, draft lucrare ISI.
	Faza 5- Testarea cu generator de impulsuri si in conditii reale de lucru folosind surse radioactive a noului CHIP TRD proiectat in cadrul grupului pentru viitorul aranjament experimental CBM. (Partea III)	Studiul rezolutiei spatiale a prototipurilor TRD cu geometrie triunghiulara a pad-urilor electrodului de citire a semnalelor in masuratori in fascicul. Raport de etapa; prezentare meeting CBM.
	2012 **Faza 1**- A. Proiectarea zonei interne a primei statii a subdetectorului TRD pentru experimentul CBM de la FAIR; simulari CADENCE ale CHIP-ului FASP folosind distributii de sarcini simulate prin GARFIELD. B. Studii si cercetari pentru identificarea de noi metode/ tehnologii de realizare a straturilor subtiri multiple cu proprietati complementar-cumulative pentru aplicatii industriale.	A. Desene si scheme de proiectare, solutii tehnologice pentru arhitectura finala a zonei interne a primei statii a subdetectorului TRD. Simulari GARFIELD si CADENCE pentru estimarea performantei raspunsului CHIP-ului FASP la ionizarile produse de particulele minim ionizante in detectorul TRD. B. Identificarea de noi metode de realizare a straturilor subtiri tribologice si anticorozive si experimentari preliminare.
	Faza 2- "Studiul rezolutiei in pozitie a prototipului de detector de timp de zbor cu electrozi rezistivi din sticla de inalta rezistivitate (RPC) si electrozi de citire a semnalelor de inalta granularitate. Proiectarea si realizarea unui prototip de detector RPC cu arhitectura optima din punct de vedere performanta/ cost pentru aranjamentul experimental CBM de la FAIR." **Faza 3-** "Studiul si proiectarea acoperirii optime din punct de vedere performanta/cost cu module compuse din detectori MGMSRPC, respectiv	Rezolutii de pozitie in directia transversala si respectiv longitudinala a stripurilor. Desene si schite de proiectare. Prezentare meeting CBM, prezentare workshop international RPC.

	HCRTRD a zonei unghiurilor polare mici(50mrad-200mrad) a subsistemelor CBM-TOF si respectiv CBM-TRD. Partea I: zona unghiurilor polare mici a subsistemului CBM-TOF pentru experimentele ce se vor desfasura la SIS-100." **Faza 4-** "Ecuatia de stare a materiei nucleare asimetrica in izospin" **2013** **Faza 1**- Studiul experimental si teoretic al interactiilor la energii relativiste. Partea I: Corectii de "feed-down" ale spectrelor de particule incarcate folosind modele teoretice.	Bazat pe modele teoretice se vor obtine contributiile provenite din dezintegrarile slabe pentru pioni, kaoni si protoni functie de impulsul transvers.
	Faza 2- Experimentari tehnologice cu instalatia multifunctionala pentru depuneri de straturi subtiri in vid, din dotarea DFH, pentru determinarea parametrilor tehnologici in vederea realizarii straturilor subtiri multiple lubrifiante cu grosime: "superllatice (g=1-10nm), nanometrica (10-100nm) si micrometrica (g>100nm), prevazute in cererile de brevet IFIN-HH cu numerele de inregistrare la OSIM:A/00621; A/00622; A/00623 si A/00729.	Experimentarile tehnologice vor atesta functionabilitatea instalatiei de depuneri de straturi subtiri si rezultatele vor constitui baza experimentala a brevetelor depuse la OSIM.
	Faza 3- Studiul si proiectarea acoperirii optime din punct de vedere performanta/cost cu module compuse din detectori MGMSRPC, respectiv HCRTRD a zonei unghiurilor polare mici (50 mrad-200mrad) a subsistemelor CBM-TOF si respectiv CBM-TRD. Partea II: zona unghiurilor polare mici a subsistemului CBM-	Pe baza cerintelor experimentului CBM si a performantelor prototipurilor de detectori TRD dezvoltati in cadrul DFH se va realiza proiectarea zonei corespuinzatoare unghiurilor polare mici ale subdetectorului TRD.

	TRD pentru experimentele ce se vor desfasura la SIS-100.	
	Faza 4 - Proiectarea, realizarea si testarea in fascicul de electroni si pioni a unui prototip de detector TRD tip camera multifilara cuplata cu o zona de drift cu electrod de citire a semnalelor cu granularitatea ceruta de zona interna a primei statii a subdetectorului CBM-TRD. Simulari CADENCE pentru optimizarea parametrilor chip-ului ASIC FASP in scopul imbunatatirii procesarii semnalului furnizat de prototipul de detector TRD.	Desene de proiectie. Estimarea factorului de rejectie a pionilor. Reconstructie de pozitie. Optimizarea timpului de formare a electronicii front-end prin simulare CADENCE.
	Faza 5 - Structura si reactii nucleare la nuclee exotice (NuPNET-SARFEN) : Corelatii de doi nucleoni relevante pentru nuclee de masa medie bogate in protoni.	Studiul corelatiilor de doua corpuri in canalele T=0 si T=1 relevante pentru competitia dintre dezintegrarile β Fermi si Gamow-Teller a nucleelor cu A=70 bogate in protoni.
	Faza 6 - Amenajarea Laboratorului de testare a detectorilor TRD pentru masuratori cu surse radioactive si raze cosmice. Testarea detaliata a prototipului de detector TRD de dimensiune corespunzatoare zonei interne a sub-detectorului TRD al aranjamentului experimental CBM de la FAIR	Proiectare si constructia sistemului de scanare mecanica bidimensionala a ariei active a detectorului. Realizarea aranjamentului experimental de testare. Setarea sistemului de achizitie pentru monitorarea on-line a achizitiei de date. Analiza detaliata a raspunsului detectorului si a electronicii front-end cu pulser si sursa de 55 Fe.
	Faza 7 - Proiectarea, constructia si testarea preliminara folosind surse radioactive si raze cosmice a structurii de baza pentru zona interna a CBM_TOF bazat pe celule RPC	Desene de proiectare. Prototip structura de baza cu 4 celule RPC. Realizare aranjament experimental pentru teste cu raze cosmice. Teste preliminare cu raze cosmice si surse radioactive.
	Faza 8 - Experimentari tehnologice de realizare si caracterizare a straturilor subtiri tribologice de tip multistrat, depuse in vid prin pulverizare	a. Metodologie de realizare a acoperirilor tribologice cu caracteristici imbunatatite (rezistenta la uzura si coeficient de frecare) si de caracterizare structurala,

	magnetron.	compozitionala si tribologica in colaborare cu INCDFM si UTBv. b. Articol in pregatire pentru publicare la o viitoare conferinta internationala
	Faza 9 - Structura si reactii nucleare la nuclee exotice (NuPNET-SARFEN) : Corelatiile de imperechere sunt investigate prin studiul largimii de dezintegrare in procesul de emisie bi-protonica.	Corelatiile de imperechere sunt investigate prin studiul largimii de dezintegrare in procesul de emisie bi-protonica functie de parametrii interactiei, atat pe suprafata nucleara cat si in zona externa, in cazul nucleelor 45-Fe si 48-Ni.
	2014 **Faza 1 -** Straturi subtiri tribologice nanostructurate	1. Documentare privind identificarea metodelor si a parametrilor tehnologici de realizare a straturilor tribologice nanostructurate. 2. Realizarea straturilor tribologice nanostructurate prin pulverizare tip magnetron in CC si RF. 3. Caracterizarea suprafetei nanostructurate a depunerilor prin Microscopie de Forta Atomica.
	Faza 2 - Structura si reactii nucleare la nuclee exotice (NuPNET-SARFEN): Efecte ale violarii simetriei de izospin si ale coexistentei de forma la nuclee de masa medie	Se studiaza efectele amestecului de izospin si forme diferite asupra comportarii la spini josi si intermediari intr-un triplet izovector analizand Coulomb Energy Differences (CED), Mirror Energy Differences (MED), Triplet Energy Differences (TED). Se va obtine o interactie efectiva nucleon-nucleon realista ce nu conserva izospinul prin renormarea matricii G pornind de la potentialul Bonn cu dependenta de sarcina (Bonn CD).
	Faza 3 - Simulari de impedante de linii de transmisie RPC. Proiectare si realizare RPC in arhitectura de stripuri cu 100 Ohm impedanta	Optimizarea impedantei liniei de transmisie prin simulari. Desene de proiectare. Componente mecanice. Prototip detector RPC cu 100 Ohm, impedanta linie de transmisie
	Faza 4 - Teste de laborator folosind surse radioactive si raze cosmice a prototipurilor de detectori de radiatie de tranzitie (TRD) pentru rate mari de numarare dezvoltate pentru	Realizarea aranjamentului experimental de testare si masuratori folosind sursa de 55Fe. Reconstructia de energie depusa si pozitie-2D folosind un trigger emulat soft. Estimarea erorilor

	experimentul CBM de la FAIR	sistematice ale celor doua observabile reconstruite pentru prototipul TRD de dimensiuni reale dezvoltat pentru subdetectorul CBM -TRD.
	Faza 5 - Optimizarea arhitecturii modulelor din zona interna a subdetectorului de timp de zbor (ToF) pentru CBM; proiectarea structurii mecanice si a conexiunilor electronice de transport a semnalelor.	Se va eficientiza structura modulara a zonei interne a subdetectorului de timp de zbor (ToF) al CBM din punct de vedere al volumului ocupat precum si a posibilitatii de cuplare optima la zona externa a ToF. Aceasta va necesita modificarea topologiei conexiunilor electronicii de procesarea a semnalelor. Aceasta va fi proiectata tinand cont de noua configuratie mecanica si de nivelul de integrare al electronicii front-end.
	Faza 6 - Studiul sistematic al lungimii de coerenta in sisteme nucleare	Se vor rezolva ecuatiile de pariring cu interactie de tip Gaussian, impunand conditia de selfconsistenta si anume ca lungimea de coerenta sa fie egala cu parametrul de largime al potentialului biparticula. Se va face o analiza sistematica parametrului potentialului astfel obtinut pentru toate nucleele cu parametru de gap masurat. Functia biparticula va fi folosita drept conditie initiala pentru a investiga nucleele care emit doi protoni.
	Faza 7 - "Studiul dependentei parametrilor functionali ai detectorilor RPC si TRD pentru CBM, functie de fluxul de particule incidente"	Masuratori in fascicul si analiza dependentei curentului si tensiunii de operare a detectorilor RPC si TRD in functie de fluxul de particule. Calculul puterii disipate de detectorii RPC in modulele proiectate pentru zona interna a subdetectorului CBM-TOF.
	Faza 8 - Experimentari tehnologice de realizare si caracterizare a straturilor subtiri tribologice de tip multistrat, depuse in vid prin pulverizare magnetron.	Se va calcula lungimea de coerenta de cuartet si se va studia comportarea acesteia in nucleele care emit particule alfa.
	2015	
	Faza 1- Proiectarea modulului M2	Contributii competitive in cadrul colaborarii internationale CBM in

	pentru zona interna a subdetectorului TOF al CBM in vederea executiei.	proiectarea si implementarea in zona interna a subdetectorilor CBM-TRD si CBM-TOF a prototipurilor de detectori TRD si RPC dezvoltati in DFH.
	Faza 2 - Testarea in fascicul a detectorului RPC de dimensiuni reale pentru zona interna a subdetectorului CBM-TOF folosind amplificatori/discriminatori PADI si convertori TRB bazati pe FPGA.	A fost proiectata in trei variante partea mecanica de sustinerera detectorilor in modulul M2 in vederea realizarii practice a acestuia. S-a urmarit eficientizarea structurii din punct de vedere al eficientei geometrice, fara a altera rezistenta mecanica.
	Faza 3 - Masuratori de laborator pentru determinarea rezolutiei de pozitie a detectorului TRD dezvoltat pentru experimentul CBM de la FAIR folosind dispozitivul de scanare automata din dotarea DFH.	Evaluarea performantelor prototipului de detector RPC cu arhitectura ceruta de zona interna a subdetectorului CBM-TOF in conditii apropiate de cele de operare in experimentul real .
	faza 4 - Proiectarea si testarea sistemului de distributie de gaze pentru operarea prototipurilor de detectori realizati in DFH pentru mari colaborari internationale la care DFH este partener. Realizarea de configuratii experimentale pentru teste in fascicul.	Punerea in evidenta a unor efecte sistematice ce apar pentru reconstructia pozitiei atat in lungul firelor anodice – variabila x in prezentul raport – cat si perpendicular pe aceasta directie – variabila y. S-au pus in evidenta pentru variabila x dependente sistematice care tin de cluster size, pozitia efectiva in lungul firelor anodice si energia depusa iar pentru variabila y tipul cuantificat al acesteia. S-a obtinut pentru rezolutia de pozitie a observabilei x o valoare de 570 microni in care trebuiesc incluse pe langa detectorul TRD si contributia neneglijabila a rezolutiei ansamblului de scanare.
	Faza 5 - Cercetari privind realizarea si caracterizarea straturilor subtiri tribologice, obtinute prin pulverizare magnetron din tinte de Ti, TiB2 si WC	Realizarea unei instalatii de distributie de gaze etansa pentru a fi utilizata atat pentru testarea in regim de curgere de gaz a prototipurilor de detectori dezvoltati pentru experimentul CBM de la FAIR si a camerelor OROC pentru modernizarea subdetectorului ALICE-TPC al aranjamentului experimental ALICE, construiti in cadrul DFH. Realizarea unei configuratii experimentale pentru teste in fascicul ale prototipurilor de detectori dezvoltati in DFH. Realizarea in premiera a acoperirilor

		tribologice din cele 3 materiale (Ti, TiB2 si WC) , cu structura cuaternara (Ti-B-W-C) si pentanara si (Ti-B-W-C-N) si caracterizarea lor functionala si compozitionala.
PN 09 37 01 07 Faza 5: Dezvoltarea capacitatilor de realizare de ansambluri experimentale la acceleratoarele tandem din IFIN-HH.	Laborator suport de electronică Laborator de tinte Atelier mecanic	Principala activitate a acestui laborator este analiza si depanarea sistemelor electronice existente, dar si realizarea de sisteme noi pentru automatizare. Laborator dedicat prepararii chimice a probelor destinate analizelor de tipul AMS si IBA. Atelier destinat realizărilor de ansamble experimentale precum si dezvoltarea de componente si ansambluri cu un grad înalt de aport tehnologica
PN 09 37 01 08		
Cercetari teoretice si experimentale asupra interactiei campurilor foarte intense cu nuclee si materia nucleara	Protocoale experimentale pentru evaluarea efectelor biologice induse de campuri complexe de radiatii cu aplicatii in domeniile spatial	Identificare protocoalelor experimentale si a echipamentelor analinite necesare pentru aranjament experimental pe platforma ELI NP-E5 Area
	Protocoale experimentale pentru testarea componentelor electronice si materialelor cu aplicatii in domeniile spatial si nuclear	Identificarea protocoalelor experimentale si a echipamentelor analinite necesare pentru aranjament experimental pe platforma ELI NP-E5 Area
	Model functional “Camera multifunctionala de simulare a conditiilor specifice spatiului cosmic”	Definirea si validarea caracteristicilor viitoarei camere de interactie la ELI NP- E5 Area
	HPLS-TDR4/2015 „Materials in extreme environments for energy, accelerators and space applications at ELI-NP”	Implementare aranjament experimental la ELI NP-E5 Area
	Studiu: AN IN-HOUSE ASSESSMENT OF THE PUBLIC EXPOSURE TO CUMULATED ATMOSPHERIC RADIOACTIVE DISCHARGES FROM ELI-NP AND IFIN-HH FACILITIES	Verificareaconformitatiiemisiiloratmosferice radioactive preconizate ale sistemului ELI-NP + IFIN HH in regimtehnologic normal, cu normelereglementateprivindradioprotectiamediuluisi a populatiei. Rezultatele studiului vor servi ca suport tehnic in fundamentarea pozitiei ELI-NP in negocierea cu Autoritatea de reglementare nationala in domeniul nuclear (CNCAN), a nivelelor derivate de emisie ale sistemului ELI-NP + IFIN-HH. Rezultatele studiului vor fi introduse in TDR-ul Safety and Radiation Protection Dosimetry for ELI–NP
	Stand de simulare spatiu cosmic pentru efectuarea testelor de anduranta	Identificare solutii tehnice pentru aranjament experimental pe

	echipamentelor cu utilizari speciale	platforma ELI NP
	Stand pentru simularea efectelor biologice	Identificare solutii tehnice
	induse de campuri complexe de radiatii	pentru aranjament experimental pe platforma ELI NP
	Protocoale experimentale pentru componente electronice si materiale polimerice analizate	Identificare protocoalelor experimentale si a echipamentelor analitice necesare pentru aranjament experimental pe platforma ELI NP
	Protocoale experimentale preliminare pentru probe biologice (culturi de celule)	Identificare protocoalelor experimentale si a echipamentelor analitice necesare pentru aranjament experimental pe platforma ELI NP
	Realizarea unui set-up experimental pentru obtinerea si procesarea radiochimica a unor radioizotopi cu utilitate medicala	Testarea principiului separarii chimice prin distilare uscata in separari de radioizotopi.
	Producerea Mo-99 in ciclotron prin reactii nucleare (p,n) si simularea metodelor de separare radiochimica, purificarea si testarea analitica.	Demonstrarea functionalitatii conceptului experimental privind procesarea radiochimica Mo-99/Tc-99m
	A preliminary in-house assessment of the public exposure to atmospheric radioactive discharges from eli operations	Contributie la evaluarea impactului radiologic de mediu si sanitar al sistemului ELI, cu relevanta in procesul de autorizare.
	-Finalizarea TDR - Safety and Radiation Protection Dosimetry for ELI–NP -Elaborarea TDR – Dosimetry Laboratory for ELI–NP	Aceste TDR-uri reprezinta punctele de plecare pentru implementarea sistemelor de monitorare la radiatii pentru pentru personal si mediul inconjurator la ELI-NP
PN 09 37 01 06		
Studiul fenomenelor fizice prin metode teoretice si computationale in domenii de frontiera	Realizarea unui nou cod de calcul bazat pe SM, flexibil si precis pentru calculul elementelor de matrice nucleara atat pentru 48Ca cat si pentru alte elemente candidate la dezintegrarea 0νββ. Obtinearea EMN si estimarea timpilor de viata pentru dezintegrarea 0νββ a 48Ca.	Calculul elementelor de matrice nucleare pentru dezintegrarea beta dubla cu o precizie mai mare decat rezultatele actuale.
	Et. I. Rezultat teoretic: Calculul ratelor de emisie ale axionilor in stele neutronice prin procese de bremsstrahlung nucleonic, prin includerea intr-un mod consistent a efectelor nucleare provenite din utilizarea unui potential nucleon-nucleon cu schimb de unul si doi pioni (OPEP si TPEP) in aproximatia Born. **Et. a II-a. Rezultat teoretic.** Descrierea precisa a ratelor de captura electronica in supernovae care pot fi folosite la dinamica procesului de explozie. Obtinerea unor noi predictii ale timpului de viata pentru dubla captura de electroni a Zn, care pot fi adoptate de experimentul COBRA.	O cunoastere mai buna a mecanismului de formare si racire a stelelor neutronice Intelegerea mai buna a procesului de evolutie stelara.
PN09370104 **Dezvoltarea infrastructurii Grid si de calcul performant pentru fizica sistemelor complexe**	Studiu de fezabilitate privind modernizarea retelei de date din cladirea administrativa a institutului	Servicii de retea de calitate superioara

	TI: Integrarea componentelor software ale sistemului de gestiune si financiar-contabil al IFIN-HH	Descongestionarea activitatii de raportare si monitorizare centralizata
	TI: Dezvoltarea si optimizarea infrastructurii de comunicatii de date a IFIN-HH; conectarea IFIN-HH la RoEduNet la 100 Gbps	Asigurarea suportului IT necesar gestionarii proiectelor CDI
	TI: Contributii la realizarea bazei tehnice pentru calculul grid la nivelul prevazut in Memorandumul de Intelegere incheiat cu CERN privind resursele si serviciile destinate colaborarii WLCG	Respectarea angajamentului asumat fata de CERN
	TI: Realizarea de solutii software in vederea imbunatatirii managementului termic si a cresterii eficientei centrului de date LCG	Cresterea eficientei sistemului grid gazduit de DFCTI
	TI: 1.Realizarea aplicatiei software ISy	Facilitarea accesului comunitatii de biologie computationala la sisteme de calcul avansat
	TI: Realizarea unui sistem de management al performantei in centrul grid RO-07-NIPNE, prin implementarea unor noi instrumente software de monitorizare si masurare a parametrilor relevanti pentru caracterizarea eficientei echipamentelor de calcul si de stocare de date din centrul grid	Cresterea coeficientului de disponibilitate si a productivitatii centrului grid RO-07-NIPNE, in vederea satisfacerii cerintelor colaborarii WLCG.
	TI: Upgrade-ul capacitatii de calcul paralel din in tehnologie CPU si GPGPU. Cresterea puterii de procesare a site-ului grid RO-07-NIPNE, dedicat colaborarii WLCG	Sustinerea computationala a proiectului FP7 HP-SEE si a cooperarilor interne si internationale in domeniul biofizicii si al fizicii starii condensate. Satisfacerea cerintelor CERN privind asigurarea nivelului de resurse si servicii pentru gridul de calcul LCG.
	Studiu: Demonstrarea existentei unei instabilitati Faraday in condensatele Bose-Einstein binare nemiscibile supuse modularii periodice a constrangerii radiale. Obtinerea relatiei de dispersie a undelor de densitate si demonstrarea generarii unui spectru de excitatii roton-maxon de catre interactia dipol-dipol dintre atomi in condensatele Bose-Einstein dipolare cu constrangere radiala.	Intelegerea mai buna a dinamicii undelor Faraday in condensatele Bose-Einstein.
	Studii privind interactiile neutrino-nucleu fix (40Ar), la energii de ordinul GeV, si metode de reconstructie a energiei neutrino, folosind generatorul Monte Carlo de evenimente GENIE	Imbunatatirea potentialului detectorilor subterani de a determina proprietatile neutrino.
	TI: Cresterea capacitatii de calcul paralel a clusterului IBM_BC, componenta a infrastructurii de calcul HPC din Europa de Sud-Est, edificata in cadrul proiectului FP7 HP-SEE.	Cresterea resurselor de calcul de inalta performanta disponibile comunitatii stiintifice din Europa de Sud-Est
	Studiu privind modelarea computationala a nanostructurilor cuasibidimensionale de grafena-hBN impurificata cu metale de tranzitie	Posibilitatea realizarii unor dispozitive cu proprietati de filtrare sau comutare de spin
	Studiu privind descrierea analitica a cuplarii modale in frecventa ce apare	Demonstrarea eficientei algoritmilor genetici pentru rezolvarea analitica

	intr-un condensat de tip Bose-Einstein supus la excitatii parametrice de frecventa variabila	aproximativa a ecuatiilor diferentiale ordinare
	TI: Extinderea serviciilor sistemului software de management al IFIN GRID si al framework-ului DIRAC in vederea sustinerii Gridului National pentru Biologie Computationala si a comunitatii ELI-NP	Imbunatatirea serviciilor grid furnizate de IFIN GRID comunitatii stiintifice
	Studiu privind elaborarea unor noi modele de calcul de dimensionalitate redusa pentru descrierea condensatelor Bose-Einstein	Caracterizarea dinamicii condensatelor Bose-Einstein pentru diferite geometrii relevante experimental
	TI: Implementarea unor elemente de securitate si a unor sisteme de monitorizare a regimului termic si de transfer de date pentru cresterea sigurantei si securitatii infrastructurii IT	Imbunatatirea sigurantei in exploatare a infrastructurii IT
	Studiul modurilor de operare a dispozitivelor electro-optice pe bază de molecule fotocromice furil-fulgide, cu izomerizare activată prin iluminare	Biomoleculele din clasa fulgidelor pot sta la baza urmatoarei generatii de comutatori fotocromatici si pot fi elemente active versatile pentru nanodispozitive electronice reconfigurabile
	Studiu privind structurile de benzi fononice pentru diferite structuri alotrope ale grafenei	Alotropii de carbon ai grafenei pot creste performanta viitoarelor dispozitive termoelectrice
	Studiu privind efectul impuritatilor metalice asupra proprietatilor termoelectrice ale nanopanglicilor hibride grafena-nitrura de bor	Posibilitatea proiectarii dispozitivelor termoelectrice de noua generatie
	TI: Certtificarea site-ului GRIDIFIN in Infrastructura Europeana Grid si realizarea Centrului National de Operatiuni Grid	Asigurarea conectarii Romaniei la infrastructura europeana de calcul grid
PN 09 37 02 01 **Autentificarea patrimoniului cultural si datarea prin termoluminescenta si luminescenta stimulata optic**	• Obtinerea autorizatiei de functionare pentru laboratorul IRASM in domeniul **conservare – investigatii fizico-chimice**, emisa de Ministerul Culturii. (Autorizatia Nr. 66/ 15.12.2014) • Obtinerea autorizatiei de functionare pentru laboratorul IRASM in domeniul **conservare bunuri culturale mobile,** emisa de Ministerul Culturii. (Autorizatia Nr. 70/ 30.07.2015)	Cresterea numarului de solicitari de investigatii pentru conservarea, caracterizarea si/sau autentificarea obiectelor de patrimoniu cultural
PN 09 37 02 02		
Dezvoltarea infrastructurii Grid si de calcul performant pentru fizica sistemelor complexe	**(**prototip) Sistem de focalizare a fasciculelor de ioni cu energii de ordinul MeV prin structuri de sticlă cu capilaritate conică; Imbunatatirea calitatii analizelor structuirilor micrometrice. (prototip) Sistem automatizat de control a temperaturii probei si invelisului cu ajutorul a doua bai de termostare programabile. Dezvoltarea unor cercetari bazate pe Spectroscopia Anihilarii Pozitronice.	Imbunatatirea calitatii analizelor structurilor micrometrice. Dezvoltarea unor cercetari bazate pe Spectroscopia Anihilarii Pozitronice.
	(prototip)	Imbunatatirea calitatii analizelor

	Sistem de focalizare a fasciculelor de ioni cu energii de ordinul MeV prin structuri de sticlă cu capilaritate conică de 1μm; (experimentare prototip) Sistem automatizat de control a temperaturii probei si invelisului cu ajutorul a doua bai de termostare programabile modelul experimental de tun electronic pentru producerea de pozitroni monoenergetici cu energie variabilă.	structuirilor micrometrice Dezvoltarea unor cercetari bazate pe Spectroscopia Anihilarii Pozitronice
Informare si diseminare a rezultatelor activitatii de cercetare din fizica nucleara (PN 09 37 02 03)	Studiu: Analiza cerintelor de instruire ale personalului care executa activitati cu surse de radiatii şi identificarea funcţionalităţilor platformei online de informare şi instruire. Studiu: Analiza platformelor online de instruire pentru identificarea soluţiei optime pentru serviciile de instruire ale CPSDN IFIN HH Prototip: Implementarea unei platforme pilot de informare şi instruire bazată pe platforma open source Moodle Prototip: Curs pilot „Radioprotecţie utilizatori de instalaţii radiologice cu generatori X”. Studiu: Elaborarea documentaţiilor suport pentru programele de formare conform metodologiei CNFPA: identificarea modulelor şi a necesarului de resurse umane şi material, proiectele didactice; Studiu: Elaborarea documentaţiei suport pentru acreditarea CNFPA a unui curs de perfectionare Realizare Brosura IFIN-HH, realizare materiale publicitare, actiuni suport pentru activitatea de marketing si promovare de imagine	- Creşterea capabilităţii CPSDN IFIN - HH de instruire profesională continuă, formare şi perfecţionare a personalului din domeniul nuclear - Identificarea unei soluţii de informare şi formare pentru maximizarea eficienţei procesului de instruire - Atragerea cursanţilor către forme alternative de instruire - Creşterea capabilităţii CPSDN IFIN – HH de formare şi perfecţionare a personalului cu responsabilitati in practici cu surse de radiatii ionizante - Cresterea vizibilitatii IFIN-HH
Informare si diseminare a rezultatelor activitatii de cercetare din fizica nucleara (PN 09 37 02 03)	Proiect: Crearea unei baze de informare si documentare unitara in domeniul fizicii nucleare, care sa cuprinda atat componentele de cercetare fundamentala si aplicativa, cat si aplicatiile din diverse domenii, precum energetica, medicina, bilogie, etc. Proiect: Racordarea Bibliotecii Nationale de Fizica la circuitul national de biblioteci. Organizarea de manifestari la nivelul Platformei de Fizica de la Magurele pentru popularizarea facilitatilor oferite de Biblioteca Nationala de Fizica. Suport logistic (afise, carti cu abstracte, etc) pentru organizarea de catre IFIN-HH, de seminarii	Platforma de informare si documentare este creata pentru diseminarea cunostintelor de baza si a reglementarilor in vigoare pentru utilizarea in conditii de siguranta a surselor de radiatii. Dezvoltarea si modernizarea accesului cercetatorilor la literatura de specialitate. Folosirea eficienta pentru informare a bazelor de date furnizate in cadrul proiectului ANELiS Cresterea vizibilitatii stiintifice si tehnologice a IFIN-HH prin racordarea la aria europeana si mondiala de cercetare

	stiintifice, scoli internationale, conferinte	
Informare si diseminare a rezultatelor activitatii de cercetare din fizica nucleara (PN 09 37 02 03)	Studiu privind activitatea de cercetare in domeniul nuclear in Romania Studii privind realizarea transferului tehnologic in domeniul nuclear Proiect: Crearea unei baze de informare si documentare unitara in domeniul fizicii nucleare, care sa cuprinda atat componentele de cercetare fundamentala si aplicativa, cat si aplicatiile din diverse domenii, precum energetica, medicina, biologie, etc.	In urma studiilor efectuate la diverse institute de cercetare din domeniul nuclear din tara se va intocmi o baza de date a rezultatelor obtinute, ce va constitui punctul de plecare in elaborarea metodelor optime de marketing. Pornind de la studiile realizate, se pot trage concluzii care sa conduca la elaborarea de metode eficiente pentru realizarea transferului tehnologic in institutele de cercetare din domeniul nuclear. Creşterea vizibilităţii IFIN-HH prin diseminarea rezultatelor activităţilor de cercetare – dezvoltare, cu scopul de promovare şi transfer tehnologic către industrie sau potenţialii utilizatori, de creştere a atractivităţii domeniului nuclear pentru tineri specialişti, în paralel cu înţelegerea de către persoanele interesate a domeniului nuclear. Pentru persoanele interesate Platforma de informare si documentare este creata pentru a permite diseminarea cunostintelor de baza si a reglementarilor in vigoare privind utilizarea in conditii de siguranta a surselor de radiatii.
PN 09 37 02 04 **Realizarea si exploatarea de facilitati experimentale in fizica nucleara aplicata**	Omologare serie zero sonda SPIN 224	
	MicroTomograf cu pozitroni Model demonstrativ	Cercetare/demonstrare
	Folosirea FPGA in sisteme de achizitie rapide	Studiu
	Studiu de fezabilitate si dezvoltare experimentala pentru producerea surselor de 22Na de mica activitate la ciclotronul TR-19	Studiu
PN 09 37 02 05 **“Cercetari destinate dezvoltarii bazei de etaloane a Romaniei in domeniul radiatiilor ionizante, destinate aplicatiilor medicale si radioactivitatii mediului”**	Set de date nucleare de dezintegrare evaluate, imbunatatite, pentru radionuclidul Fe-52	Actualizarea bazei internationale de date nucleare NUCLEIDE, http://www.nucleide.org/DDEP_WG/DDEPdata.htm
	Participarea cu succes la compararea internaţională CCRI(II)-S10 LASCE si validarea sistemului de măsurare şi a metodei de măsurare a activităţii de suprafaţă pentru surse emiţătoare de radiaţii α şi β, conţinând radionuclizii ^{241}Am, ^{14}C, ^{147}Pm şi ^{90}Sr; validarea la nivel internaţional a lanţului naţional de trasabilitate metrologică pentru măsurarea acestor tipuri de surse radioactive.	Perfectionarea serviciilor de etalonare a activitatii de suprafata pentru surse emitatoare de radiatii α şi β - servicii oferite clientilor IFIN-HH, Dept. DRMR, Laboratorul de Metrologia Radionuclizilor (LMR)
	- Realizarea si imbunatatirea standului de etalonare in fond	- Participarea la proiecte internationale

	ultrascazut a aparaturii destinate dozimetriei de mediu - unicat - Acreditarea internationala a Laboratorului de etalonare in fond ultrascazut pentru aparatura dozimetrica de mediu	- Efecte economice (etalonari ale aparaturii dozimetrice de mediu – 8 etalonari, valoare 5000 RON)
PN 09 37 02 07		
Dezvoltarea infrastructurii experimentale si a bazei materiale de la acceleratoarele de tip Tandem din IFIN-HH pentru extinderea metodelor şi tehnicilor de caracterizare/prelucrare/implantare cu fascicule accelerate.	• Studii de proiecte • Prototipuri functionale • Folosirea tehnicilor de manufacturare prin aditie pentru realizarea de subansamble folosite în vid • Rezultate stiinţifice prezentate la conferinţe	• Extinderea ariei de aplicaţii pentru acceleratorul Tandetron de 3 MV • Atragerea de consumatori noi (arheologi, ingineri biomedicali)
PN 029 37 03 01 Dezvoltarea de cercetari experimentale, produse informatice si programe expert pentru evaluarea impactului activitatilor nucleare si industriale asupra mediului inconjurator si sistemelor biologice	1.Intocmirea procedurilor: de sistem, organizatorice si de lucru pentru Laboratorului de Radiochimie pentru Probe de Mediu (LRPM) 2. Elaborare de noi metode de determinare a radioactivitatii probelor de mediu utilizand echipamentele achizitionate in cursul anului 2008.	1. Finalizarea documentatiei si depunerea acesteia la CNCAN in vederea notificarii Laboratorului de Radiochimie pentru Probe de Mediu (LRPM). 2. Folosirea noilor metode in programul de monitorizare a radioactivitatii mediului.
PN 09 37 03 02		
Tehnici si tehnologii de dezafectare a instalatiilor nucleare si radiologice si managementul materialelor rezultate din practici nucleare	Plan de caracterizare radiologica a instalatiei radiologice Tandem-Postaccelerare; Raport de caracterizare radiologica a instalatiei radiologice Tandem-Postaccelerare Plan de dezafectare al instalatiei radiologice Tandem-Postaccelerare Elaborare caiet de sarcini, documentatie tehnica si cerinte pentru instalatie de tratat lichide radioactive rezultate din activitati de dezafectare a reactorului nuclear VVR-S, cercetare si microproductie radioizotopi si radiofarmaceutice, decontaminari	Dezafectarea instalatiei radiologice tandem postaccelerare, documentatie pentru autorizare CNCAN, Igiena Radiatiilor, protectia mediului, protectia muncii, protectia populatiei. Eliberare nerestrictiva a amplasamentului si reutilizarea acestuia. Elaborare proceduri si tehnologii de dezafectare, interfete a echipelor din IFIN-HH participante la dezafectare. Achizitionarea statiei de tratare lichide radioactive, Solutionarea problemelor critice privind tratarea lichidelor radiocative stocate la Statia de Tratare Deseuri Radioactive. Stabilirea cailor de retehnologizare a STDR in domeniul tratarii lichidelor radioactive
	Plan conceptual de dezafectare al Reactorului Nuclear de Putere 0 Identificarea de tehnologii inovative de decontaminare si demolare si implementarea acestora la elaborarea documentatiei. Elaborarea unui protocol de testare pentru metodele selectare Specificatia tehnica “COLET DE STOCARE SURSE RADIOACTIVE	Dezafectarea Reactorului Nuclear RP0, documentatie pentru autorizare CNCAN, Igiena Radiatiilor, protectia mediului, protectia muncii, protectia populatiei. Eliberare nerestrictiva a amplasamentului si reutilizarea acestuia. Elaborare proceduri si tehnologii de dezafectare, interfete a echipelor din IFIN-HH participante la dezafectare Coletul pentru stocarea pe termen lung a deseurilor radioactive alfa

	ALFA UZATE TIP CSM-SS-ALFA”	active este realizat in vederea gestionarii in siguranta a diverselor categorii de deseuri radioactive care nu indeplinesc cerintele de depozitare finala si a reducerii la minim a impactului asupra populatiei si mediului inconjurator pe durata stocarii.
	Raport de incercare pentru produsul Coletul pentru stocarea surse radioactive alfa uzate CSM-SS-ALFA. Autorizatie de securitate radiologica pentru produs Cerere de brevet de inventie Program tehnologic pentru utilizarea conteinerelor ECOLRAD in activitatea de management a deseurilor radioactive	Prin colectarea de pe teritoriul Romaniei a surselor de viata lunga se elimina posibilitatea de contaminare a mediului si populatiei, iai incapsularea acestor surse radioactive uzate minimizeaza riscul de contaminare a personalului operator. DMDR intentioneaza sa extinda proiectul si pentru sursele radioactive de neutroni a caror etanseitate si ecranare sunt incerte , sunt depozitate ca deseuri radioactive in depozitele intermediare ale STDR si prezinta un potential pericol pentru contaminarea personalului expus profesional si a mediului. Prin utilizarea containerelor ECOLRAD pentru realizarea coletelor de stocare pe termen lung se asigura stocarea in conditii de securitate pana la momentul in care in Romania vor exista facilitati destinate depozitarii finale.
	“Program de monitorizare a radioactivitatii mediului on-site si in vecinatatea Depozitului National de Deseuri Radioactive Baita, jud. Bihor” Raport: „Elaborarea tehnicilor de dezmembrare aplicabile structurilor, sistemelor, echipamentelor si componentelor instalatiilor nucleare”	Institutul National de Cercetare – Dezvoltare pentru Fizica si Inginerie Nucleara “Horia Hulubei”, care exploateaza Depozitul National de Deseuri Radioactive de la Baita, jud.Bihor, incepand cu anul 1985, anul darii in folosinta a depozitului, urmareste dinamic, prin masurari trimestriale a radioactivitatii si a eventualelor migrari de elemente radioactive, eficacitatea masurilor preventive aplicate in vederea asigurarii securitatii nucleare a populatiei si mediului inconjurator. Scopul prezentului program este efectuarea unitara a masurarilor dozimetrice si a analizelor spectrometrice beta si gamma a probelor prelevate din zona Depozitului National de Deseuri Radioactive, Baita – Bihor (DNDR-IFIN-HH). Masurarea sistematica a factorilor specifici prezentata in cadrul prgramului permite o evaluare a activitatilor desfasurate in cadrul DNDR – Baita in vederea desfasurarii acestora fara risc de iradiere suplimentara a personalului din populatie si fara impact asupra mediului inconjurator. Conditiile geologice si hidrogeologice,

	Raport: “Elaborarea tehnicilor de curatare si decontaminare radioactiva a suprafetelor, folosind acoperiri exfoliabile di de protectie aplicabile in procesul de dezafectare”	specifice minei Baita si zonei adiacente, asigura o protectie naturala corespunzatoare pentru populatie si mediu din vecinatatea si aval DNDR. Lucrarile de demolare si taiere a structurilor de beton si de dezmembrare si segmentare a structurilor metalice, trebuie planificate si controlate luand in considerare necesitatea caracterizarii radiologice precise a resturilor de moloz rezultate, care pot fi destinate tratarii ulterioare, eliberarii nerestrictive sau depozitarii finale. In mod uzual alegerea tehnicii de demolare si taiere a structurilor din beton, dezmembrare si segmentare a structurilor metalice pentru o aplicatie specifica este determinata, dupa cum este aplicabil, de luarea in considerare a avantajelor si dezavantajelor fiecarei tehnici disponibile. Adesea, este necesara o combinatie a diferitelor tehnici, datorita diversitatii de situatii intalnite in instalatia ce urmeaza a fi dezafectata. La alegerea tehnicilor de demolare si taiere a structurilor din beton, dezmembrare si segmentare a structurilor metalice, consideratiile importante luate in calcul se refera la producerea de deseuri secundare, limitarea contaminarii, chestiuni legate de securitatea containerelor si lucratorilor, randamentul si fiabilitatea tehnicilor. Adesea aplicarea unei tehnici specific, este strans legata de utilizarea sistemelor de ghidare a sculelor pentru a asigura standardele asteptate de precizie si randament. In cazul demolarilor si taierilor structurilor de beton, o atentie deosebita trebuie acordata evitarii deteriorarii structurilor in special din motive de stabilitate a constructiei. Gelurile de decontaminare reprezinta un mijloc eficace de reducere sau de eliminare a contaminarii suprafetelor cladirilor sau echipamentelor. Aceasta tehnologie poate imbunatati securitatea lucratorilor si poate reduce cerintele de echipament de protectie a personalului, ducand la reducerea costurile si posibil la accelerarea procesului de dezafectare. Pentru a evalua eficacitatea produselor DeconGel™ 1101 si respectiv DeconGel™ 1102, recent

		introduse pe piata, a fost elaborat prezentul studiu. A fost realizata decontaminarea a cinci tipuri de suprafete contaminate artificial: inox, tabla vopsita, linoleum, beton nevopsit si faianta. Obiectivul fazei a fost de a evalua cantitativ abilitatea gelului de a indeparta contaminarea cu radionuclizii ^{137}Cs, respectiv ^{60}Co. Rezultatele au fost evaluate cantitativ prin procentul de indepartare a contaminantului. Ca aplicatie practica au fost decontaminate un strung si o freza contaminate cu uraniu saracit.
	Ghid de operare, control si caracterizare pe fluxul tehnologic din statia de tratare efluenti radioactivi aposi de joasa si medie activitate (STERAJMA)"	- Omologare tehnologie - Elaborarea documentatiei necesare autorizarii practicii, precum si asigurarea conditiilor de operare prin personal calificat si instruit. - autorizarea instalatiei radiologice STDR, ca urmare a modernizarii, a practicilor desfasurate in cadrul DMDR privind managementul deseurilor radioactive.
	Metoda de caracterizare chimica prin spectrometrie atomica a deseurilor radioactive lichide apoase Elaborare tehnologie de tratare prin supercompactare a deseurilor radioactive solide de joasa si/sau medie activitate si stabilirea fluxurilor Elaborarea unui protocol de testare a Statiei de tratare a efluentilor radioactivi aposi de joasa si/sau medie activitate (STERAJMA) Elaborarea instructiunilor si procedurilor de lucru Tehnologie de dezafectare a degazorului din circuitul primar al RN VVR-S	Caracterizarea din punct de vedere chimic, respectiv, a speciilor chimice poluante non-radioactive care au o influenta deosebita atat in controlarea chimismului pe fluxul tehnologic cat si in respectarea cerintelor de eliberare in mediu, dupa tratare. va conduce la dezvoltarea unei tehnologii corespunzatoare pentru procesarea deseurilor radioactive in elaborarea careia trebuie sa se tina cont, in principal, de caracteristicile, cantitatea si cerintele pentru forma finala a acestora. Respectarea unuia din principiile fundamentale de management a deseurilor radioactive - minimizarea volumului de deseuri – prin reducerea volumului deşeurilor solide prin compactare de presiune ridicată Exploatarea in siguranta a sistemului de tratare a efluentilor radioactivi lichizi. Cunoasterea si controlul tuturor aspectelor legate de procesul de tratare a deseurilor radioactive de joasa si medie activitate, precum si asigurarea conditiilor de operare prin personal calificat si instruit. Omologarea tehnologiilor noi. Elaborarea documentatiei necesare autorizarii practicii de catre organismele abilitate.

		Dezafectarea degazor in conditii de securitate
	Elaborarea tehnologiei de dezafectare a canalelor orizontale ale RN VVR-S	Dezafectarea canalelor orizontale cu indeplinirea cerintelor din normativele CNCAN privind dezafectarea structurilor, sistemelor, echipamentelor si componentelor din cadrul RN VVR-S.
	Elaborarea tehnologiei de demolare a protectiei biologice a RN VVR-S	Dezafectarea in conditii de securitate a protectiei biologice, cu indeplinirea cerintelor din normativele CNCAN privind dezafectarea structurilor, sistemelor, echipamentelor si componentelor din cadrul RN VVR-S.
	Elaborarea tehnologiei de dezafectare a coloanei termice a RN VVR-S	Dezafectarea coloanei termice cu indeplinirea cerintelor din normativele CNCAN privind dezafectarea structurilor, sistemelor, echipamentelor si componentelor din cadrul RN VVR-S.
	Elaborarea ecuatiilor integrale pentru eficacitatea surselor de suprafata mare emitatoare beta si a eficacitatii de detectie	Dezvoltarea unei metode originale de masurare a activitatii surselor plane de suprafata mare care emit radiatii beta. Aplicabilitate in evaluarea incertitudinii in masurarile de contaminare superficiala
	Metoda si program de calcul pentru determinarea activitatii surselor de suprafata mare emitatoare beta	Validarea metodei de masurare folosind surse de ^{60}Co si ^{137}Cs de suprafata mare.
	Aplicarea principiilor ALARA in elaborarea si implementarea programului de radioprotectie pe fluxurile de tratare a deseurilor radioactive nou implementate	Evaluarea, stabilirea si implementarea masurilor de radioprotectie si monitorizare radiologica a intreg perimetrului de influenta al STDR. Stabilirea modului de supraveghere radiologica si modul in care se realizeaza monitorizarea activitatilor, a spatiilor de lucru si a personalului expus profesional, in vederea asigurarii securitatii radiologice.
	Dezvoltarea unei metode de analiza a probelor de apa prelevate in cadrul programului de monitorizare a DNDR Baita, Bihor prin masuratori alfa si/sau beta globale, in vederea completarii domeniului de analize a probelor de mediu	Realizarea unei monitorizari complexe si sporirea increderii ca activitatile din cadrul DNDR se desfasoara in deplina siguranta pentru mediul si populatia din localitatile situate in zona de influenta a depozitului, prin compararea valorilor obtinute de laborator (pentru probele prelevate din aval de depozit) cu valorile obtinute de laboratoarele Ministerului Mediului pe alte rauri din tara.
	Elaborarea metodei de conditionare a prin cimentare a concentratelor radioactive rezultate in procesul de tratare a deseurilor radioactive lichide apoase, in vederea depozitarii finale	Rezultatele obtinute pe probele de ciment si mortar preparate cu componenti inactivi ce simuleaza concentratul radioactiv, demonstreaza faptul ca un raport concentrat/ciment de pana la 0,45 asemanator cu raportul apa/ciment folosit pentru obtinerea mortarului pe fluxul tehnologic de conditionare a deseurilor radioactive, nu are o

		influenta negativa asupra parametrilor tehnologici ai matricii de ciment, ei situandu-se in limitele admise pentru matricea de conditionare a deseurilor radioactive. In aceste conditii, metoda va fi implementata in cadrul STDR la inglobarea concentratelor radioactive rezultate ca urmare a tratarii deseurilor radioactive lichide apoase.
	Dezvoltarea de metode de retinere a ionilor de cesiu din deseurile radioactive apoase utilizand ferocianura de nichel depusa pe silicagel	Ferocianura de Ni-K precipitata pe silicagel a fost testata ca material schimbator de ioni anorganici pentru indepartarea ionilor de Cs din solutii apoase. Implementarea metodei va permite calculul factorilor de decontaminare pentru a identifica parametrii ce influenteaza procesul si limitele acceptabile pentru variabilitatea procesului de separare.
PN 09 37 04 01		
Stabilirea principalelor directii stiintifice ce urmeaza a se desfasura la proiectul ELI-NP si a mijloacelor tehnice de realizare a acestora, definirea caracteristicilor tehnice ale spatiilor si echipamentelor pentru evaluarea costurilor si realizarea studiului de fezabilitate	The White Book of ELI Nuclear Physics	Realizarea in Romania a unei infrastructuri de cercetare de nivel mondial dedicata studiile de fizica nucleara si aplicatii folosind laseri de mare putere si fascule gamma
	Studiul de Fezabilitate al "EXTREME LIGHT INFRASTRUCTURE – NUCLEAR PHYSICS (ELI-NP)"	
	Proiectul Major „EXTREME LIGHT INFRASTRUCTURE – NUCLEAR PHYSICS FACILITY"	
	Realizare studiu de fezabilitate solutie de rezerva climatizare cladiri aferente investitiei ELI-NP (Extreme Light Infrastructure-Nuclear Physics)	Studiul de fezabilitate a scos in evidenta fezabilitatea realizarii unei solutii de rezerva pentru climatizarea cladirilor aferente investitiei ELI-NP

4.2. Valorificarea în producţie a rezultatelor obţinute:

Denumirea proiectului	Tipul rezultatului	Utilizatori	Efecte socio-economice la utilizator
PN 09 37 01 08 Cercetari teoretice si experimentale asupra interactiei campurilor foarte intense cu nuclee si materia nucleara	Rezultatele studiului vor servi ca suport tehnic in fundamentarea pozitiei ELI-NP in negocierea cu Autoritatea nucleara nationala, CNCAN, a nivelelor derivate de emisie ale sistemului ELI-NP + IFIN-HH.		
Informare si diseminare a rezultatelor activitatii de cercetare din fizica nucleara (PN 09 37 02 03)	Pilot (Prototip) – Platforma de informare şi instruire online Elaborarea documentaţiei de	Participantii la programele de instruire derulate de CPSDN IFIN – HH Participantii la programele de	- Eficientizarea pregatirii prin cresterea calitatii instruirii si diminuarea timpilor de scoatere din producţie a personalului beneficiarilor - Îmbunătăţirea accesului la informaţie (atât pentru personalul din domeniul nuclear, cât şi pentru public) - Creşterea gradului de specializare şi competitivitate a personalului din

	acreditare a CPSDN al IFIN – HH ca furnizor de instruire autorizat CNFPA	instruire acreditate CNFPA	domeniul nuclear - Atragerea tinerilor din alte domenii către o carieră în domeniul nuclear
Informare si diseminare a rezultatelor activitatii de cercetare din fizica nucleara (PN 09 37 02 03)	Proiect: Crearea unei baze de informare si documentare unitara in domeniul fizicii nucleare, care sa cuprinda atat componentele de cercetare fundamentala si aplicativa, cat si aplicatiile din diverse domenii, precum energetica, medicina, bilogie, etc. Proiect: Racordarea Bibliotecii Nationale de Fizica la circuitul national de biblioteci. Organizarea de manifestari la nivelul Platformei de Fizica de la Magurele pentru popularizarea facilitatilor oferite de Biblioteca Nationala de Fizica. Suport logistic (afise, carti cu abstracte, etc) pentru organizarea, de catre IFIN-HH ,de seminarii stiintifice, scoli internationale, conferinte.	Operatori de instalatii radiologice industriale; Personal medical din radiologie, radioterapie si medicina nucleara; Cadre tehnice din minerit si din prelucrarea minereurilor radioactive; Personal din cercetare Cercetatori de pe Platforma Magurele; Specialisti in fizica, biologie chimie din diferite unitati ce cercetare si invatamint superior de pe Platforma de Fizica de la Magurele sau din tara; Studenti, elevi, cadre didactice .	Cresterea sigurantei in utilizarea surselor radioactive avand ca efect asigurarea protectiei personalului operator, pacientilor, populatiei in general si a mediului. Dezvoltarea cunoasterii in domeniu, prin facilitarea accesului la informatie; Cresterea gradului de atractivitate catre acest domeniu, fapt care conduce implicit la marirea numarului de specialisti in viitor
Informare si diseminare a rezultatelor activitatii de cercetare din fizica nucleara (PN 09 37 02 03)	Baza de date privind institutele de cercetare cu preocupari in domeniul nuclear Studiu de realizare de transfer tehnologic Proiect: Crearea unei baze de informare si documentare unitara in domeniul fizicii nucleare, care sa cuprinda atat componentele de cercetare fundamentala si aplicativa, cat si aplicatiile din diverse domenii, precum energetica, medicina, biologie, etc.	Potentiali utilizatori in domenii conexe Institute de cercetare cu activitati in domeniul nuclear Potentiali utilizatori in domenii conexe. Tineri in curs de formare Operatori de instalatii radiologice industriale si/sau medicale Cadre tehnice din minerit si/sau din prelucrarea minereurilor	Elaborarea de metodologii de marketing Elaborarea de metodologie de realizare de transfer tehnologic Informare corecta in domeniu atat pentru specialisti, cat si nespecialisti. Cresterea gradului de atractivitate al domeniului. Cresterea sigurantei in utilizarea surselor radioactive avand ca efect asigurarea protectiei personalului operator, pacientilor, populatiei in general si a mediului.

		radioactive; Personal din cercetare	
"Cercetari destinate dezvoltarii bazei de etaloane a Romaniei in domeniul radiatiilor ionizante, destinate aplicatiilor medicale si radioactivitatii mediului" (PN 09 37 02 05)	Realizarea standului de etalonare a aparaturii dozimetrice- unicat	IFIN-HH	Participare la proiecte europene; realizare de etalonari pentru diversi beneficiari
PN 09 37 03 01 **Dezvoltarea de cercetari experimentale, produse informatice si programe expert pentru evaluarea impactului activitatilor nucleare si industriale asupra mediului inconjurator si sistemelor biologice**	**Transfer tehnologic:** Instalare sistem expert RODOS PV1F, sistem de sprijin al factorilor de decizie in caz de accident nuclear,in varianta proiectata pentru sistem de operare LINUX, in Centrul de Accident Nuclear si Urgenta Radiologica din cadrul Inspectoratului National pentru Situatii de Urgenta.	Inspectoratului National pentru Situatii de Urgenta.	Sprijin pentru factorii de decizie in caz de accident nuclear.

4.3. Participarea la colaborări internaţionale:

Nr. crt.	Denumirea programului internaţional	Ţară şi/sau CE unităţi colaboratoare	Denumire proiect	Valoarea proiectului (mil.lei)	
				Valoare totală proiect	Valoare ţară
	PN 09 37 01 01				
1	ATLAS	Elvetia, CERN	ATLAS		
2	LHCb	Elvetia, CERN	LHCb		
3	NA62	Elvetia, CERN	NA62		
4	PANDA	Germania, FAIR	PANDA		
5	RD51	Elvetia, CERN	RD51		
6	H1	Germania, DESY	H1		
	PN 09 37 01 03				
1	LHC - CERN	Elvetia, Geneva	ALICE		
2	FAIR-CBM	Germania, Darmstadt	CBM		
3	GSI-FOPI	Germania, Darmstadt	FOPI		
4	LNS	Italia, Catania	CHIMERA		
5	FP7-I3HP	CE, Brussels	I3HP2		
6	DFG	Germania, Univ. Tuebingen	Structure of exotic nuclei		
7	FAIR-NUSTAR	Germania	HISPEC/DESPEC		
8	CERN-ISOLDE	Elvetia, Geneva	ISOLDE		

9	Acord de colaborare Romania-Franta	**Romania**_Univ. Transilvania-Bv; IFIN-HH **Franta**_	Realization of the New Blended Technology, based on Multilayer Nanoscale (superlattice) Deposition with Tailored Functional or Multifunctional Properties	402,485.388	202,485.388
	PN 09 37 01 04				
1	Colab. CERN	35 tari	Worldwide LHC Computing Grid - WLCG	-	-
2	Hulubei-Meshceryakov	LIT/IUCN	Definition and Implementation of New Functional Features (monitoring, cloud services, etc.) of the Distributed and Parallel	0,13	0,02
3	Hulubei-Meshceryakov	LIT/IUCN	Computing Facilities at LIT-JINR and Magurele Campus	0,13	0,02
4.	FP7-Infrastructures	GRNET (Grecia) + 13 tari partenere	Development of Methods, Algorithms, and Software Computationally Adapted to the Existing Hardware at LIT-JINR and Magurele Campus High-Performance Computing Infrastructure for South East Europe's Research Communities (HP-SEE)	8.946	524
5.	CEA-IFA Cooperation - Joint R&D Projects	IRFU/CEA (Franta)	Efficient Handling and Processing of PetaByte-Scale Data for the Grid Centers within the FR Cloud (HAPPSDAG)	966	400
	PN 09 37 01 05				
1.	SPARC	GSI - Darmstadt	Prototip detector cu diamant		1,529,352
2.	DITANET	Consortiu CE (lab. din 10 tari)	Constructie detector de tip „zero time"		1,234,353
3.	Proficiency test	IAEA	IAEA-CU-2007-03 World-wide open proficiency test – masurare radioactivitate mediu		-
4.	Acord colab. bilat. IFIN-HH –IN2P3 (Franta)	Lab. GANIL (Caen, Franta)	Structura nucleara la granita intre nuclee stabile si instabile		600,000
5.	KASKADE-Grande	Germania, KIT	Studiul spectrului energetic al razelor cosmice		600,000
6.	Colab. bilaterala	Univ. Torino	Studiul componentei miuonice din cascade atmosferice extinse		-
7.	Eu-NIM FP6 research programme	LLB, CEA Saclay	Dinamica moleculara prin imprastiere cvasielastica de neutroni		867,310
8.	DIRAC	CERN (14 lab. din 8 tari)	Detector de pre-shower pentru experimentul DIRAC	7,000,000 euro/an	307000 RON/an
	PN 09 37 01 07				
	FAIR	Germania,	FAIR	1.089M euro	12M euro
	RIBF, RIKEN	Japonia: RIKEN RIBF SUA: Texas A&M Univ, Washington University Ungaria:	NP1412SAMURAIR29		

		ATOMKI Debretin			
	PN 09 37 01 08				
	ERA NET - Black Sea Pilot Joint Call for Research Proposals	BS ERA.NET7-049,	Radiation background of Black Sea coastal environment (RACE)	1,242418 mil. lei	0,87826146 mil. lei
	FP7-283745 CRISP	Franta, Italia, Marea Britanie, Germania, USA/ LULI, INRS-EMT, INFN; ILPP; Dipartimento SBAI, Universita di Roma "La Sapienza"; The Queen's University of Belfast, Berkeley Departament of Nuclear Engineering and LLNL	Innovative Solution for Neutrons and Gamma Rays contract no.	15 860 216 Euro	146 532 Euro
1	International Atomic Energy Agency Coordinated Research Programme	IAEA, Turcia, Italia, Ungaria, Portugalia, Coreea de Sud, China, Japonia, Polonia, SUA, Brazilia, Algeria, Egipt	CRP No.: 1539 – F23029 , Title: Radiation Treatment of Wastewater for Reuse with Particular Focus on Wastewaters Containing Organic Pollutants; ctr. 16426-RO „Extensive use of gas chromatography - mass spectrometry for the characterization of the effects of radiation treatment on wastewater"	200.000 Euro (900.000 RON)	20.000 Euro (90.000) RON
2	UEFISCDI, Programul Capacitati	Turcia	Contr. Nr. 598/2013 „Identificarea condiţiilor optime de procesare pentru prepararea polimerilor super absorbanţi pe baza de Guma Xantan cu radiaţii ionizante." (Acronim IRSAP)		10.000 Euro (45.000 RON)
	PN 09 37 02 01				
1.	IAEA European Technical Cooperation Project RER/8/015 (2009-2011)	Albania, Armenia, Croatia, Cyprus, France, Greece, Malta, Montenegro, Portugalia, Polonia, Serbia, Slovenia, Turkey, Ungaria	Using Nuclear Techniques for the Characterisation and Preservaton of Cultural Heritage Artifacts in the European Region	$491.975	$35.0000
2.	COST Action IE0601 (2007-2011)	Austria; Belgium; Czech Republic; Denmark; Finland; Former Yugoslav Republic of Macedonia; France; Germany; Greece; Hungary; Italy;Latvia;	Wood Science for Conservation of Cultural Heritage		

		Malta; Netherlands; Norway; Poland; Portugal; Romania; Slovenia; Spain; Sweden; Switzerland; Turkey;United Kingdom			
3.	IAEA European TCP RER/8/017 (2009 – 2011)	Albania; Armenia; Azerbaidjan; Bulgaria; Croatia; Georgia; Kazakhstan; Lithuania; Montenegro; Portugal; Republic of Moldova; Romania; Russian Federation; Serbia; Slovenia; Turkey; Ukraine	Enhancing Quality Control Methods and Procedures for Radiation Technology	$300.000	$30.0000
4.	IAEA Technical Cooperation Project ROM/8/015 (2007-2009)	IAEA-Vienna – IFIN-HH-Romania	Implementation of Quality Assurance and Quality Control Systems at Radiation Processing Plants	$602.900	$602.900
5.	Protocol for scientific collaboration between IFIN-HH-Romania and INFN-Italia (2010-2013)	Italia, Instituto Nazionale di Fisica Nucleare (INFN)	V. Field of interdisciplinary applications: Subject a). Authentication and dating in art, archaeology, and geology by thermoluminiscence and optically stimutated luminiscence	Protocolul de colaborare stiintifica stabileste doar cadrul pentru mobilitati intre IFIN-HH si INFN	
6.	Parteneriat IFA – CEA Franta	Franta, CEA-Grenoble, DRT / LITEN / Laboratoire ARC-Nucléart	"Education and training in the field of cultural heritage conservation by gamma irradiation"	900000 RON + 84000 EUR	900000 RON
7.	IAEA European Technical Cooperation Project RER/0/034 (2012-2013)	Albania, Azerbaijan, Bosnia-Herzegovina, Bulgaria, Croatia, Cipru, Franta, Grecia, Malta, Muntenegru, Polonia, Portugalia, Serbia, Slovenia, Macedonia, Turcia, Ucraina, Ungaria	IAEA TC Project RER/0/034 "Using Nuclear Techniques for the Characterization and Preservation of Cultural Heritage Artefacts in the European Region"	300000 EUR	35000 EUR
8.	IAEA European Technical Cooperation Project RER/0/039 (2014-2015)	Albania, Azerbaijan, Bosnia-Herzegovina, Bulgaria, Croatia, Cipru, Franta, Grecia, Malta, Muntenegru, Polonia, Portugalia, Serbia, Slovenia, Macedonia,	IAEA TC Project RER/0/039 "Extending and Diversifying the Application of Nuclear Technology in Cultural Heritage"	300000 EUR	35000 EUR

		Turcia, Ucraina, Ungaria			
9.	International Atomic Energy Agency Technical Cooperation Projects (IAEA TC Projects)	Bangladesh, Brazil, Croatia, Cuba, Egypt, France, Iran, Italy, Poland, Portugal, Romania, Serbia, Tunisia, Turkey, Ukraine	IAEA Coordinated research Project CRP F23032 (2015-2016) „Developing Radiation Treatment Methodologies and New Resin Formulations for Consolidation And Preservation of Archived Materials and Cultural Heritage Artefacts"	200.000 EUR	12000 EUR
	PN 09 37 02 03				
1	HEPTech Network	CERN – Elvetia	Conectarea CTTM al IFIN-HH la HEPTech Network		
	PN 09 37 02 02				
1.	FP7-ITN Marie Curie		DITANET		1.143.225 RON
	FP7	CE	DITANET		266,107.58EUR
	PN 09 37 02 04				
1	LHCb	CERN	Colaborare LHCb		
2	EURATOM	FP7	Fuziune		457.575
3	CEA	Franţa	Profilarea tritiului		680.000
4	Dubna	IUCN	Sisteme de detectie		344.703
	PN 09 37 02 05				
1	IAEA CRP F41029 „Nuclear Data for Charged-particle Monitor Reactions and Medical Isotope Production"	Agentia Internationala pentru Energie Atomica (IAEA), Viena	Research Contract 17442/2012, "Improved nuclear decay data for some new emerging medical isotopes"	Circa 0,9 mil. lei (0,2 mil. euro)	Circa 0,06 mil. lei (fonduri IAEA pentru IFIN-HH, România)
2	EURAMET	CE	(1)- project 1132, „EURAMET supplementary comparison of the ambient dose equivalent rate for photon radiation" (2)- project EURAMET AIEA 1177, „Comparison of calibration of KAP meters in terms of air kerma area products" (3)- project 1248, „ Survey of European countries' legal regulations and practices in ionising radiation calibrations"		
3	EM2-STEM:	CE	-Entrepreneurship and Management Training for Science, Technology, Engineering and Mathematics, 2010-2014		
4	IFA-CEA	Franta	- CATRAS	0,260 000	0,260
5	EMPIR	CE	- 14RPT-04- ABSORB	2,061 (457939,2 EURO)	0,119070 (26460EURO)
6	EMRP	CE	- ENV57	9,48 (2106883,47 EURO)	0,325 (72103,74 EURO)
7	Program de cooperare	Belgia	- project 15 RDC cu SCK-CEN Mol, Belgia, 2010-1011		0,027 (6000 EURO)

	stiintifica Belgia-Romania		-		
8	Program de cooperare stiintifica Belgia-Romania	Belgia	„Characterization and comparison of the X-ray facilities of the dosimetry calibration laboratories of SCK-CEN and of the Romanian research institute IFIN-HH”		0,02 (4500 EURO)
	PN 09 37 02 06				
1	Eureka	Cehia Romania Polonia Grecia	Radionuclide Precursors And Radipharmaceuticals For Targeted Radionuclide Imaging And Therapy In Nuclear Medicine	8.000.000	1.800.000
2	Cooperare Tehnica IAEA Viena	IAEA	Establishing a Cyclotron and PET Radiopharmaceutical Manufacturing Facility and Implementing GMP and ISO Management	1.500.000	1.500.000
3	Coordinated Research Project	IAEA (18 tari)	Development of 99mTc dextran mannose conjugate derivative for sentinel node detection and cancer diagnosis	-	20.000
4	Coordinated Research Project	IAEA (15 tari)	Development of new PET radiopharmaceuticals based on 68Ga for diagnosis and monitoring of the therapeutic response	-	20.000
5	FP7 EURATOM FISSION	Nuclear decommissioning authority Marea Britanie/29 Institute din 15 tari)	CAST (CArbon-14 Source Term) Project nr. 604779/2013	2.030.032.431	225.000
	PN 09 37 03 01				
	FP7-INFRASTRUCTURES-2007-1	C.E.	LAGUNA—Design of a pan-European Infrastructure for Large Apparatus studying Grand Unification and Neutrino Astrophysics, no.21243		999.900
	Black See EUR.NET; BSERANET-041	Romania, Moldova, Bulgaria	Radiation background of the Black Sea coastal environment	300 000 EURO	103 000 EURO
1.	European Joint Programme for the Integration of radiation Protection Research	CE	CONCERT 662287 - EURADOS, OPERA, MELODI		
	PN 09 37 03 02				
1.	ROM 3/006	IAEA-Viena	Assistance to develop technology and improve capability for the conditioning of disused sealed radioactive sources (DSRS) including alpha and neutron sources.	103.089 $	103.089 $

2.	ROM 9/029	IAEA-Viena	Strengthening IFIN-HH's Capacity in Radioactive Waste Management	80.655 $	80.655 $
3.	CRP 14185	IAEA - Viena	'Long term behaviour evaluation of cement conditioning matrices used for management of radioactive wastes at IFIN-HH" Part of Co-ordinated Project: Behaviour of Cementitious Materials in Long Term Storage and Disposal of Radioactive Waste	20.000 $	20.000 $
4.	PHARE RO 2006/018-411.03.04	UE	Safe decommissioning of the research reactor VVR-S-Magurele	1.640 000 euro	1.640 000 euro
5	PHARE RO 2006/018-411.03.05	UE	Up-grading the Radioactive Waste Treatment Plant-IFIN-HH	1.800.000 euro	1.800.000 euro
6	PHARE RO 2006/018-411.03.06	UE	Up-grading the national Repository for Radioactive Waste-Baita Bihor	1.800 000 euro	1.800.000 euro
7	ROM 9034	IAEA Technical Cooperation	Supporting the improvement of the Safe Management of Spent Nuclear Fuel and Radioactive Waste	258.800 Euro	107.600 IFIN 151.200 ANDR
8	EMERSYS MIS-ETC 774	IGSU RO, DGFSCP si INRNE -BG	Toward an integrated, joint cross-border detection and harmonized rapid responses procedures to CBRN emergencies	6.429.000 euro	3.200.000 euro
9	JRP Consortium Agreement EURAMET ENV54 MetroDecom	Cehia, Italia, Romania, Franta, Finlanda, UK, Germania, Belgia	Metrology for decommissioning nuclear facilities	4.899.000 EUR	86.300 EUR (RO)
10	Romania-Bulgaria Cross-Border Cooperation Programme 2007-2013	IFIN-HH RO, IGSU RO, INRNE BG, DGFSCP BG	EMERSYS - Toward an integrated, joint cross-border detection system and harmonized rapid response procedures to chemical, biological, radiological and nuclear emergencies.	6.429.000 EUR	3.200.000 EUR

4.4. Articole (numai cele publicate în reviste cu referenţi de specialitate):

Nr. crt.	Denumirea publicaţiei	Titlul articolului
		PN 09 37 01 01
	- în ţară: - în străinătate:	(am inclus in tabel doar publicatiile in care apare „Supported by the Romanian National Authority for Scientific Research under the contract PN 09370101")
	Eur.Phys.J. C75 (2015) 12, 580	Combination of measurements of inclusive deep inelastic e±p scattering cross sections and QCD analysis of HERA data
1	JHEP 1509 (2015) 149	Combination of differential D∗± cross-section measurements in deep-inelastic ep scattering at HERA
2	JHEP 1505 (2015) 056	Diffractive Dijet Production with a Leading Proton in ep Collisions at HERA
3	JHEP 1503 (2015) 092	Measurement of Dijet Production in Diffractive Deep-Inelastic ep Scattering at HERA
4	Eur.Phys.J. C75 (2015) 2, 65	Measurement of multijet production in ep collisions at high Q^2 and determination of the strong coupling α_s
5	JINST 10 (2015) 05, P05009	Performance of fully instrumented detector planes of the forward calorimeter of a Linear Collider detector
6	Eur.Phys.J. C74 (2014) 6, 2915	Measurement of Feynman-x Spectra of Photons and Neutrons in the Very Forward Direction in Deep-Inelastic Scattering at HERA
7	Eur.Phys.J. C74 (2014) 4, 2814	Measurement of inclusive ep cross sections at high Q2 at √s= 225 and 252 GeV and of the longitudinal proton structure function F_L at HERA
8	Eur.Phys.J. C73 (2013) 6, 2466	Elastic and Proton-Dissociative Photoproduction of J/psi Mesons at HERA

9	Eur.Phys.J. C73 (2013) 4, 2406	Measurement of Charged Particle Spectra in Deep-Inelastic ep Scattering at HERA
10	Eur.Phys.J. C73 (2013) 2, 2311	Combination and QCD Analysis of Charm Production Cross Section Measurements in Deep-Inelastic ep Scattering at HERA
11	Eur.Phys.J. C72 (2012) 2175	Combined inclusive diffractive cross sections measured with forward proton spectrometers in deep inelastic ep scattering at HERA
12	Eur.Phys.J. C72 (2012) 2148	Measurement of Beauty Photoproduction near Threshold using Di-electron Events with the H1 Detector at HERA
13	JHEP 1209 (2012) 061	Inclusive Deep Inelastic Scattering at High Q^2 with Longitudinally Polarised Lepton Beams at HERA
14	Eur.Phys.J. C72 (2012) 2047	Measurement of Beauty and Charm Photoproduction using Semi-muonic Decays in Dijet Events at HERA
15	Eur.Phys.J. C72 (2012) 2163, Eur.Phys.J. C74 (2012) 2733	Determination of the Integrated Luminosity at HERA using Elastic QED Compton Events
16	Eur.Phys.J. C72 (2012) 2074	Inclusive Measurement of Diffractive Deep-Inelastic Scattering at HERA
17	Eur.Phys.J. C72 (2012) 1995	Measurement of Inclusive and Dijet D* Meson Cross Sections in Photoproduction at HERA
18	Eur.Phys.J. C72 (2012) 1910	Measurement of the Azimuthal Correlation between the most Forward Jet and the Scattered Positron in Deep-Inelastic Scattering at HERA
19	Eur.Phys.J. C72 (2012) 1970	Measurement of Dijet Production in Diffractive Deep-Inelastic Scattering with a Leading Proton at HERA
20	Phys.Lett.B704 (2011)388-396	Search for first generation leptoquarks in ep collisions at HERA
21	Eur.Phys.J. C72 (2012) 1836	Measurement of the Diffractive Longitudinal Structure Function F^{D}_{L} at HERA
22	Phys.Lett. B705 (2011) 52-58	Search for Contact Interactions in $e^{\pm}p$ Collisions at HERA
23	Eur.Phys.J. C71 (2011) 1771	Measurement of Photon Production in the Very Forward Direction in Deep-Inelastic Scattering at HERA
24	Eur.Phys.J. C71 (2011) 1769, Eur.Phys.J. C72 (2012) 2252	Measurement of $D^{\pm}$ Meson Production and Determination of F_2^{ccbar} at low Q^2 in Deep-Inelastic Scattering at HERA
25	Phys.Lett. B701 (2011) 20-30	Search for Lepton Flavour Violation at HERA
26	Eur.Phys.J. C71 (2011) 1579	Measurement of the Inclusive $e^{\pm}p$ Scattering Cross Section at High Inelasticity y and of the Structure Function F_L
27	Eur.Phys.J. C71 (2011) 1572	Search for Squarks in R-parity Violating Supersymmetry in ep Collisions at HERA
28	Eur.Phys.J. C71 (2011) 1578	Measurement of the cross section for diffractive deep-inelastic scattering with a leading proton at HERA
29	Eur.Phys.J. C71 (2011) 1509	Measurement of Charm and Beauty Jets in Deep Inelastic Scattering at HERA
30	Eur.Phys.J. C70 (2010) 15-37	Diffractive Dijet Photoproduction in ep Collisions at HERA

PN 09 37 01 02

	In tara:	
	Rom. J. Phys. 54, 281 (2009)	D. V. Anghel, Properties of fractional exclusion statistics in interacting particle systems
	Rom. Rep. Phys, 61, 427 (2009)	M. Visinescu, Bianchi type - I string cosmological model in the presence of a magnetic field: classical and quantum loop approach
	Rom. Rep. Phys. 61, 627 (2009)	A. Isar, Entanglement dynamics in open systems
	Rom. J. Phys. 55, 493 (2010)	Plasmons, polaritons and diffraction of the eletromagenic field for an infinite circular cylinder
	Rom. J. Phys. 55, 764 (2010)	Atraction force between a polarizable point-like particle and a semi-infinite solid
	Rom. J. Phys. 55, 903 (2010)	Properties of two-level systems in disordered materials
	Rom. J. Phys. 55, 913 (2010)	On the atomic binding energy in the Thomas-Fermi model
	Rom. J. Phys. 55, 1142 (2010)	Combinatorial Hopf Algebras in (Noncommutative) Quantum Field Theory
	Rom. J. Physics, 55, 920 (2010)	QCD correlation functions and the shape of Kl3 form factors
	Rom. Rep. Phys. 62, 99 (2010)	Discrete light bullets in one- and two-dimensional photonic lattices: collision scenarios

	Journal of Optoelectronics and Advanced Materials 12, 12 (2010)	Formation and stability of light bullets: recent theoretical studies
	Journal of Optoelectronics and Advanced Materials 12, 1 (2010)	Models for few-cycle optical solitons
	Journal of Optoelectronics and Advanced Materials 12, 6 (2010)	Spatiotemporal vortex solitons in waveguide arrays
	Proc. Romanian Academy Series A – Mathematics, Physics, Technical Sciences, Information Science 11, 142 (2010)	Three-dimensional ginzburg-landau dissipative solitons supported by a two-dimensional transverse grating
	Rom. J. Phys. 55, 569 (2010)	A uniform asymptotic approximation of the 3D scattering wavefunction for a central potential
	Rom. J. Phys. 55, 386 (2010)	Cohomological Aspects of Gauge Invariance in the Causal Approach
	Journal of Optoelectronics and Advanced Materials 12, 68 (2010)	Time evolution of entanglement in open quantum systems
	Rom. J. Phys. 55, 995 (2010)	Continuous variable entanglement in a thermal environment
	Romanian Journal of Physics, 57, 92, 2012	Dynamic single-particle excitations in low-energy fission
	Romanian Journal of Physics, 57, 262, 2012	Evolution of continuous variable correlations in open quantum systems
	Romanian Journal of Physics 57, 192, 2012	Gravitational Interaction of Yang-Mills fields from free-field cohomology
	Romanian Journal of Physics 57, 275, 2012	Context-dependent quadrature rules. A way to improve the quality of scientific codes
	Romanian Journal of Physics 57, 431, 2012	Metallic atomic clusters
	Romanian Journal of Physics, 57 493, 2012	Alpha-decay data of superheavy nuclei as a source of information about nuclear state
	Romanian Journal of Physics 57, 906, 2012	F-theory compactifications on manifolds with SU(3) structure
	Romanian Journal of Physics 57, 1002, 2012	Killing-Yano tensors of rank three and Lax pair tensors
	Romanian Reports in Physics 64, 1399, 2012	Varieties of exact solutions for the (2+1)-dimensional nonlinear Schrodinger equation with the trapping potential
	Romanian Reports in Physics 64, 1207, 2012	Effect of boundary conditions on magnetization of a finite size ferromagnet
	Proc. of the Romanian Academy A 13, 27, 2012	Combinatorics of random tensor models
	Proceedings of the Romanian Academy A 13,	Tensor models, a quantum field theoretical particularization

	225, 2012	
	Romanian Journal of Physics 58, 1198, 2013	Study of alpha-radioactivity of superheavy nuclei
	Romanian Journal of Physics 58, 599-608, 2013	Quantum entanglement of two bosonic modes in two-reservoir model
	Romanian Journal of Physics 58, 1355, 2013	Entanglement of formation for gaussian states of two bosonic modes in a thermal environment
	Romanian Reports in Physics 65, 711, 2013	Quantum and Classical Lie Systems for Extended Symplectic Groups
	Romanian J. Phys. 58, 1436 (2013)	Quantum entanglement of two-mode gaussian systems in two-reservoir model
	Rom. J. Phys. 58, 414, 2013	Revisiting eight-manifold flux compactifications of M-theory using geometric algebra techniques
	Rom. J. Phys. 58, 609, 2013	Geometric algebra and M-theory compactifications
	Romanian Reports in Physics 65, 832, 2013	Contrasting behavior of free-standing and embeddedmagnetic nanoparticles
	Rom. J. Phys. 58, 955, 2013	Phenomenologic versus microscopic description of the nanoparticle magnetization
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	J. Environ. Radioactiv. 2012),DOI:10.1016/j.jenvrad.2012.11.005	An overview of organically bound tritium experiments in plants following a short atmospheric HTO exposure
	J. Environ. Radioactiv. (2012) DOI: 10.1016/j.jenvrad.2012.08.005	Carbon-14 transfer into potato plants following a short exposure to an atmospheric 14CO2 emission: observations and model predictions
	BBA - Biomembranes, 2012, DOI 10.1016/j.bbamem.2012.08.030	Changes of cell electrical parameters induced by electroporation. A dielectrophoresis study
	Beatrice Mihaela Radu, Diana Ionela Dumitrescu, Cosmin Catalin Mustaciosu and Mihai Radu Cell Mol Neurobiol 32 (2012) 1047–1057	Dual effect of methylglyoxal on the intracellular calcium signaling and neurite outgrowth in mouse sensory neurons
	Appl Phys A 108 (2012) 91–97	Producing ORMOSIL scaffolds by femtosecond laser polymerization
	Cell Mol Neurobiol, 2012, DOI 10.1007/s10571-012-9883-6	TRPV1 properties in thoracic dorsal root ganglia neurons are modulated by intraperitoneal capsaicin administration in type 1 diabetic doubletransgenic mice
	Applied Surface Science / http://dx.doi.org/10.1016/j.apsusc.2012.10.1042012)	Functionalized ormosil scaffolds processed by direct laser polymerization for application in tissue engineering
	(trimis spre publicare, la Romanian Reports in Physics, iulie, 2013).	Safety Risks in Spent Nuclear Fuel Air Transportation – A 'Black Swan' Anatomy
	(trimis spre publicare, la Romanian Reports in Physics, iulie, 2013).	B.I. Safety Risks in Spent Nuclear Fuel Road Transportation: 'Black Swans' by Malicious Intent
	Roumanian Reports in Physics, 65 nr. 4 (2013)	Expected performances and practical aspects in personal doses measured by halide films (photodosimeters)
	Roumanian Journal of Physics, 58 nr. 3-4 (2013) 331-347	Measurement of the Equivalent Individual Doses for Patient in Angiography Procedure and Interventional Radiology with Thermoluminescent Systems
	Roumanian Journal of Physics, 58 (2013) 338-345	Ocupational Radiation Protection Quality and Complementarity of the Individual Passive Dosimeter Systems
	In strainatate	

	- Radiat. Environ. Biophys. (2013)	Carbon-14 dynamics in rice - an extension of the ORYZA2000 model
	Journal of Environmental Radioactivity (2013) 118:40-56	An overview of organically bound tritium experiments in plants following a short atmospheric HTO exposure
	Journal of Environmental Radioactivity 2014	Carbon-14 transfer into potato plants following a short exposure to an atmospheric 14CO2 emission: observations and model predictions
	Transmis spre publicare FEBS Journal	Compartmental stress responses correlate with cell survival in bystander effects induced by the DNA damage agent, bleomycin
	Journal of Radioanalytical and Nuclear Chemistry, Volume 298, Issue 1, 2013, Pages 55-60	Assessments on energy and efficiency calibration of an alpha spectrometry system using standard sources
	Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 705, 21 March 2013, Pages 13-16,	Experimental characterization of a multi-chamber alpha spectrometry system using standard actinide sources
	International Journal of Environmental Technology and Management, Volume 16, Issue 3, 1 January 2013, Pages 223-233,	Radiometric ratings for phosphogyps in industrial area in Romania
	Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, Volume 715, 2013, Pages 112-118, I.	Background radiation reduction for a high-resolution gamma-ray spectrometer used for environmental radioactivity measurements
	Nuclear Instruments & Methods in Physics Research Section A-Accelerators Spectrometers Detectors and Associated Equipment Volume: 715 Pages: 112-118, 2013	Background radiation reduction for a high-resolution gamma-ray spectrometer used for environmental radioactivity measurements
	Journal of Radioanalytical and Nuclear Chemistry, DOI 1007/s10967-013-2625-5, 2013	Determination of the content of natural radionuclides in furnace slag used for the preparation of standard sources
	Journal of Radioanalytical and Nuclear Chemistry, DOI 10.1007/s10967-013-2545-4, 2013	Environmental dose rate distribution along the Romanian Black Sea Shore
	Analyt. Biochem. 440 (2) (2013) 123–129	Fluorescence spectra decomposition by asymmetric functions - Laurdan spectrum revisited
	Optoelectron. Adv. Mat. 7(5-6) (2013) 456 - 460	Laurdan solvatochromism: influence of solvent polarity and hydrogen bonds
	Romanian Journal of Physics	Environmental radioactivity assessment studies on placement area of the new extreme light infrastructure nuclear physics facility
	Romanian Journal of	The Vertical Distribution of Rock Salt Thermoluminescence in the Slanic-

	Physics	Prahova (Romania)
	Journal of Optoelectronics and Advanced Materials	Advanced T700/XB3585 UD carbon fibers-reinforced composite
	Journal of Optoelectronics and Advanced Materials	Developing shape-memory materials using fast acting cyclic stresses for memory stabilizing
	Romanian Reports in Phys	Studies and assessments on the response of a high-performance spectrometer to alpha radiation
	Romanian Reports in Physics	Log-normal deconvolution of Laurdan fluorescence spectra - A tool to assess lipid membrane fluidity, accepted, 2016
	Romanian Journal of Biophysics	Multiple Cellular Functions of Pink1, A Key Mitochondrial Kinase in Parkinson's Disease
	Romanian Reports in Physics	Safety risks in spent nuclear fuel air transportation – a 'black swan' anatomy
	Romanian Reports in Physics	Environmental physics safety risks in spent nuclear fuel road transportation: 'black swans' by malicious intent
	Romanian Journal of Physics	Terms of reference for assessing nuclear and chemical emergencies in view of preparedness and response – an outlook
	Romanian Journal of Physics	Nuclear Meteorology at IFIN-HH.
	Romanian Journal of Physics	JRODOS Expert System and the Costumisation to Romanian Conditions
	Romanian Reports in Physics	Safety risks in spent nuclear fuel air tranportation - a black swan anatomy
	Romanian Reports in Physics	New data analysis approach applied for measurements of occupational 131I intakes through inhalation, acceptata spre publicare 2016
	Romanian Journal of Physics	Environmental radioactivity assessment studies on placement area of the new extreme light infrastructure nuclear physics facility
	Romanian Reports in Physics	Doses recorded by passive dosimeters in special circumstances and the badge filter influence on dose ranges
	Romanian Journal of Physics	The Vertical Distribution of Rock Salt Thermoluminescence in the Slanic-Prahova (Romania)
	Journal of Optoelectronics and Advanced Materials	Advanced T700/XB3585 UD carbon fibers-reinforced composite
	Journal of Optoelectronics and Advanced Materials	Developing shape-memory materials using fast acting cyclic stresses for memory stabilizing
	Romanian Reports in Phys	Studies and assessments on the response of a high-performance spectrometer to alpha radiation
	Romanian Reports in Physics	Log-normal deconvolution of Laurdan fluorescence spectra - A tool to assess lipid membrane fluidity, accepted, 2016
	Romanian Journal of Biophysics	Multiple Cellular Functions of Pink1, A Key Mitochondrial Kinase in Parkinson's Disease
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	Romanian Reports in Physics	Environmental physics safety risks in spent nuclear fuel road transportation: 'black swans' by malicious intent
	Romanian Journal of Physics	Terms of reference for assessing nuclear and chemical emergencies in view of preparedness and response – an outlook
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	Romanian Reports in Physics	Safety risks in spent nuclear fuel air tranportation - a black swan anatomy
	Romanian Reports in Physics	New data analysis approach applied for measurements of occupational 131I intakes through inhalation, acceptata spre publicare 2016
	In strainatate:	
	Applied Optics	Investigation of osteoblast cells behavior in polymeric 3D micropatterned scaffolds using digital holographic microscopy
	Progress in Nuclear Science and Technology	Occupational exposure recorded before and after new radioprotection regulations
	Journal of Environmental Radioactivity	Radiometric, SEM and XRD investigation of the Chituc black sands, southern Danube Delta, Romania
	Journal of High Energy	The mass-hierarchy and CP-violation discovery reachof the LBNO long-

	Physics	baseline neutrino experiment
	Journal of Radioanalytical and Nuclear Chemistry	Evaluation of quality parameters and of natural radionuclides concentrations in natural mineral water in Romania
	Journal of Radioanalytical and Nuclear Chemistry	Reliability and performances of a highpurity gamma spectrometry system used for environmental measurements
	Eur. Phys. J. Plus	Determination of the complex refractive index of cell cultures by reflectance spectrometry
	Int J Pept Res Ther	Cationic Antimicrobial Peptides Cytotoxicity on Mammalian Cells: An Analysis Using Therapeutic Index Integrative Concept, DOI 10.1007/s10989-014-9430-z
	Mutation Research – Fundamental and Molecular Mechanisms of Mutagenesis	Compartmental stress responses correlate with cell survival in bystander effects induced by the DNA damage agent, bleomycin, DOI information: 10.1016/j.mrfmmm.2014.11.005
	Journal of Materials Science	Laser micro-patterning of biodegradable polymer blends for tissue engineering
	Discoveries	DNA bending in the synaptic complex in V(D)J recombination: turning an ancestral transpososome upside down" DOI: 10.15190/d.2014.5
	Fusion Sci. Technol	Preparatory steps for a robust dynamic model for OBT dynamics in agricultural crops
	Fusion Sci. Technol	Progresses in tritium accident modelling in the frame of IAEA EMRAS II", doi: 10.13182/FST14-T26
	Radiat. Environ. Biophys	Carbon-14 dynamics in rice: an extension of the ORYZA2000 model
	Progress in Nuclear Science and Technology	Occupational exposurerecorded before and after new radioprotection regulation
	- în străinătate: EXOTIC NUCLEI AND NUCLEAR - PARTICLE ASTROPHYSICS V: FROM NUCLEI TO STARS; Book Series: AIP Conference Proceedings Volume: 1865 Pages:311-316, doi:10.1063/1.4909592, 2015;	Investigating $^{13}C + ^{12}C$ Reaction by the Activation Methods. Sensitivity Tests
	EXOTIC NUCLEI AND NUCLEAR - PARTICLE ASTROPHYSICS V: FROM NUCLEI TO STARS Book Series: AIP Conference Proceedings Volume: 1865 Pages: 186-196, doi:10.1063/1.4909574, 2015	New cosmic rays experiments in the underground laboratory of IFIN-HH from Slanic Prahova, Romania
	JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY, Vol. 304, Iss: 3 Pag.1303-1312, Published: JUN 2015;	Measurement and evaluation of natural radioactivity in phosphogypsum in industrial areas from Romania
	JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY, Vol. 303 Iss: 1, Pag.305-313 Published: JAN 2015	Evaluation of quality parameters and of natural radionuclides concentrations in natural mineral water in RomaniaProgresses in tritium accident modelling in the frame of IAEA EMRAS II. Fusion Sci. Technol. 67, 343-348.2015

	Fusion Sci. Technol. 67, 479-482.2015	Preparatory steps for a robust dynamic model for OBT dynamics in agricultural crops.2015
	Fusion Sci. Technol. 67, 349-352.2015	On the relationship between exchange rate and washout coefficient.
	Fusion Sci. Technol. 67, 250-253.2015	Organically bound tritium analysis in environmental samples.
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	Int J Pep Res Ther, 21: 47-55. 2015	Cationic antimicrobial peptides cytotoxicity on mammalian cells – an analysis using therapeutic index integrative concept.
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	Toxicology and Applied Pharmacology. Manuscript number: TAAP-D-15-01144.2015	Study of toxicity induced by zinc oxide nanoparticles on L929 and HepG2 cell lines.
	Journal of Environmental Radioactivity Volume: 148 Pages: 130-136 Published: OCT 2015	Assessment of derived emission limits for radioactive effluents resulted from the decommissioning activities of the VVR-S nuclear research reactor.
	PN 09 37 03 02	
	Romanian Reports in Physics, Vol. 62, No.4. P.791-800.2010	Study of structure and dynamics relaxation phenomena in complex disordered systems, resulting from hydration of the cement pastes, using the neutron scattering techniques
	Applied radiation and isotopes 68 (2010) 1503-1506	The 222 Rn standard system established at IFIN-HH, Romania
	Applied radiation and isotopes 68 (2010) 1418-1422	A new model calculation of the peak efficiency for HPGe detectors used in assay of radioactive waste drums
	Romanian reporsts in physics, Vol. 62, No.1. P.57-64, 2010	Transfer of detector efficiency calibration from a point source to other geometries using ETNA software
	-Romanian Report in Physics, Vol. 63, No. 2, p. 465-470, 2011	Determination of the diffusive motion of water molecules in hydrated cement paste by quasielastic neutron scattering
	Revista de Chimie, Vol. 61, Nr. 1, p. 99-101, 2011	Radiocarbon sorbtion on loess and improved loess samples
	Romanian Reports in	Evelina Ionescu, Doru Stanga, Octavian G. Duliu, 2013. *The free release of*

	Physics 65(1) 133-146.	*the materials resulting from the decommissioning of the VVR-S research reactor*.
	Romanian Report in Physics, 65(4), 1485-1504, 2013.	Radu Deju, Mitica Dragusin, Ioan Robu, Claudiu Mazilu, Carmen Tuca, 2013. *Review on radioactive concrete recycling methods*
	Applied Radiation and Isotopes 87, 211-215.	Doru Stanga, 2014. A simple method for determining the activity of large-area beta sources constructed from anodized aluminum foils
	Radiation Physics and Chemistry 106, 371-375.	Daniela Gurau, Radu Deju, 2015. The use of chemical gel for decontamination during decommissioning of nuclear facilities
	Romanian Reports in Physics 59 (9-10), 1043–1047.	Ioan Iorga, Daniela Gurau, Octavian Sima, 2014. Analysis of radioactive effluents pipelines for contamination/ activation
	Nuclear Technology & Radiation Protection 29 (2014) 157-164	Cristian A. Dragolici, Adrian Zorliu, 2014. Radiological assessment in case of an incident at the hot cells clean-up
	Rom. J. Phys. 59, 920- 929, 2014	C. Dragolici, F. Dragolici, Intoduction in means and methods used in chemical, Biological, radiological, and nuclear decontamination
	Rom. Journ. Phys., 59, 360–368, 2014	Laura Ionascu, Mihaela Nicu, Corneliu Turcanu, Felicia Dragolici and Gheorghe Rotarescu , Study of the conditioning matrices for aluminium radioactive wastes
	Rom. J. Phys. 59, 1025-1034, 2014	A. Petrescu, L. Done, F. Dragolici, I. Prisecaru, G. Pavel, H. Popa, Thorough investigation of radon concentration variations in Baita Bihor (Romanian National Radioactive Waste Repository – DNDR*)*
	Romanian Journal of Physics 59 (9-10), 904–911	Daniela Gurau, Doru Stanga, Mitica Dragusin, 2014. Review of the principal mechanism of radon in the environment
	Romanian Journal of Physics 59 (9-10), 891–903.	Mitica Dragusin, Doru Stanga, Daniela Gurau, Evelina Ionescu, 2014. Radiation monitoring under emergency conditions
	Romanian Journal of Physics 59 (9-10), 912–919	Daniela Gurau, Radu Deju, 2014. Radioactive decontamination technique used in decommissioning of nuclear facilities
	Romanian Reports in Physics 59 (9-10), 1043–1047.	Ioan Iorga, Daniela Gurau, Octavian Sima, 2014. Analysis of radioactive effluents pipelines for contamination/ activation
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	Rom. Journ. Phys., 59, 360–368, 2014	Laura Ionascu, Mihaela Nicu, Corneliu Turcanu, Felicia Dragolici and Gheorghe Rotarescu , Study of the conditioning matrices for aluminium radioactive wastes
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	European Research Reactor Conference Proceeding, 549-558 (2015)	Dragusin, M., Zorliu, A., Deju, R., Dragolici, C.A., Mincu, I., Stanga, D., Gurau, D., Mustata, C., Petran C., Stoian, I., Decommissioning the IFIN-HH VVR-S nuclear research reactor dismantling the primary cooling circuit
	Rad. Phys. Chem. 106, 371-375 (2015)	Gurau, D., Deju, R., The use of chemical gel for decontamination during decommissioning of nuclear facilities
	J. Environ. Rad. 148, 130-136 (2015)	Tuca, C., Stochioiu, A., Sahagia, M., Gurau, D., Dragusin, M., Assessment of derived emission limits for radioactive effluents resulted from the decommissioning activities of the VVR-S nuclear research reactor
	Appl. Rad. Isot. (accepted for publication in 2015)	D. Stanga, J. Suran, O. Sima, P. Kovar, D. Gurau, J. Solc, Uncertainty assessment in the free release measurement by gamma spectrometry of rotating waste drums
	Rom. J. Phys. (accepted for publication in 2015)	Anisoara Scarlat, Ana Pantelica, Ioan Iorga, Mitica Dragusin, Investigation of natural and artificial radioactivityin graphite from VVR-S nuclear reactor deposit by gamma-ray spectrometry

	Rom. J. Phys. (accepted for publication in 2015)	Ioan Iorga, Anisoara Scarlat, Ana Pantelica, Mitica Dragusin, Radioactivity levels in paraffin andwater samples from the decommissioning VVR-S nuclear reactor by gamma-ray spectrometry
	Applied Radiation and Isotopes (accepted for publication in 2015)	L. Done, L.C. Tugulan, D. Gurau, F. Dragolici, C. Alexandru, Comparison of LabSOCS and GESPECOR codes used in gamma-ray spectrometry
	Rom. J. Phys. 60 (7–8) 1193-1202 (2015)	Mihaela Nicu, Laura Ionascu, Corneliu Turcanu, Felicia Dragolici, Use of Lithium Nitrate as a potentially corrosion inhibitor for radioactive aluminium in cementing systems
	Bulletin of Romanian Chemical Engineering Society, 2(1) 84-99 (2015)	Laura Ruxandra Zicman, Elena Neacsu, Laurentiu Done, Liviu Tugulan, Felicia Dragolici, Tanase Dobre, Removal of 137-CS ions from aqueous radioactive waste using nickel ferrocyanide, precipitated on silica gel
	PN 09 37 04 01	
	- în ţară	
	Romanian Reports in Physics 64, 1373 (2012)	Nuclear photonics at ELI-NP
	- în străinătate:	
	NSRT12 - International Conference on Nuclear Structure and Related Topics, Dubna, Russia, Edited by S. Ershov; T. Shneydman; A. Vdovin; A. Zubov; EPJ Web of Conferences, Volume 38, id.08001(2012)	Perspectives for photofission studies with highly brilliant, monochromatic γ-ray beams
	Phys. Rev. C 87, 044321 (2013)	Exploring the multihumped fission barrier of 238U via sub-barrier photofission

4.5. Cărţi publicate:

Nr. ctr.	Titlul cărţii	Editura	Autor principal
	PN 09 37 01 02		
	- în ţară:		
	Theory of particle and cluster emission	Springer-Verlag, Berlin, Heidelberg, 2010	D. S. Delion
	Fundamente de Teoria Nucleului	Ed. Univ. Bucuresti, ed. 2, 2010	A. A. Raduta, C. M. Raduta
	Elements of Special Relativity	Ed. Univ. Bucuresti, ed. 2, 2010	A. A. Raduta, C. M. Raduta
	- în străinătate:		
	Riemann surface approach to natural modes. Exotic resonant states	Nova Science Publishers, Inc. Hauppauge NY USA, ISBN: 978-1-62081-063-7, 307 p	Cornelia Grama, N. Grama, I. Zamfirescu
	Essays in Electromagnetism and Matter	Lambert, 250 p	Marian Apostol
	PN 09 37 01 04		
	- în străinătate: (2)		
	cap. 5 din **Advances in Grid Computing**, titlu Quantum Encrypted Data Transfers in Grid, autori M. Dima, M.	InTech	M. Dima

	Dulea, A. Dima, M. Stoica, M. Udrea, Edited by Zoran Constantinescu, InTech, ISBN 978-953-307-301-9, February 2011, (p. 73 - 94)		
	Capitol "Fragmentation of a Bose-Einstein Condensate Through Periodic Modulation of the Scattering Length" in "Localized Excitations in Nonlinear Complex Systems", Nonlinear Systems and Complexity 7, DOI 10.1007/978-3-319-02057-0__5	Springer International Publishing Switzerland	Editori: R. Carretero-González et al.; autori capitol: Antun Balaž, Alexandru I. Nicolin
	PN 09 37 01 06		
	- în străinătate:		
	Exotic Nuclei and Nuclear/Particle Astrophysics (III)	American Institute of Physics	**L. Trache, S. Stoica**, A. Smirnov
	Waveguides, Resonant Cavities, Optical Fibers and their Quantum Counterpart, in : Trends in eectromagnetism	Intech, 2011	V. Barsan
	PN 09 37 01 07 în străinătate: Exotic Nuclei and Nuclear/Particle Astrophysics (V). From Nuclei to Stars, *Proceedings CSSP14*, AIP Conf. Proc. Series, vol. 1645	American Institute of Physics, New York, USA	Livius Trache (ed.)
	PN 09 37 01 08		
	- in stainatate		
	Sensors and Methods for Structural Heath Monitoring of Space Vehicles	Wiley & Sons	V. Giurgiutiu
	PN 09 37 02 01		
	- în ţară: Nuclear techniques for preservation of cultural heritage artifacts (ed. C.C.Ponta, Q.K.Tran, L..Cortella, W.Glushevski, I.V.Moise, C.C.Ponta) Evaluarea impactului conservarii prin iradiere asupra patrimoniului cultural din lemn, (2010), ISBN 978-606-92315-7-9 ,M. Geba, D. Negut, A.M.Vlad, D. Salajan, M.M. Manea, I. Stanculescu, C.C.Ponta **- în străinătate:** Ionising radiation for	Horia Hulubei Press, IAEA RTC Support, 2011 Ed. Palatul Culturii, Iasi IAEA RADIATION TECHNOLOGIES SERIES	Corneliu Catalin Ponta Maria Geba John Havermans and Corneliu Catalin Ponta

	tangible cultural heritage conservation	IAEA TECDOC (in press)	eds. J. Havermans, C.C.Ponta
	PN 09 37 02 03		
	- în ţară:		
	„Publicatia ICRP 103, Recomandarile din anul 2007 ale Comisiei Internationale de Protectie Radiologica" (traducere in limba romana), 2010	Editura Anima	ICRP – Comisia Internationala de Protectie Radiologica Simion Ghilea (trad.)
	„Publicatia ICRP 104, Sfera de aplicare a măsurilor de control ale protecţiei radiologice" (traducere in limba romana), 2011	Editura Anima	ICRP – Comisia Internationala de Protectie Radiologica Simion Ghilea (trad.)
	„Publicatia ICRP 105, Protecţia radiologică în medicină" (traducere in limba romana), 2012	Editura Anima	ICRP – Comisia Internationala de Protectie Radiologica Simion Ghilea (trad.)
	PN 09 37 02 04		
	Studiul filmelor polimerice prin intermediul spectroscopiei de pozitroni	ISBN 978-606-671-822-6	C. Barna, F. Constantin
	PN 09 37 02 05		
	- în ţară: - în străinătate:	„Mini Table de Radionucleides 2015", Ed. EDP Sciences, ISBN 978-2-7598-1198-4, 2015, France	Marie-Martine Be (CEA, LNE-Laboratoire National Henri Becquerel, France)
	PN 09 37 03 01		
	Environmental Modelling for Radiation Safety (EMRAS) - A Summary Report of the Results of the EMRAS Programme (2003-2007)	IAEA-TECDOC-1678, International Atomic Energy Agency, ISBN 978-92-0-129810-2, 2012, 50 pages	Aign J., Al-Khayat T., Galeriu D., Melintescu A. et al. (2012)
	Tritium in the Environment.	In: 'Encyclopedia of Sustainability Science and Technology', Editor-in-chief: Meyers, Robert A., Springer, New York, ISBN 978-0-387-89469-0 (2012) vol. 15: 'Environmental Radioactivity and Ecotoxicology of Radioactive Substances', Editor: Glen Bird, pages 10997-11025.	Davis P., Galeriu D
	Complexity Induced Vulnerability Assessment: How resilient are Our Academic Programs?	Topics in safety risk, reliability and quality, Vol. 24, pp.377-393, ISBN: 978-3-319-02492-9	Calida B. Y, Gheorghe A. V., Unal R., Vamanu D. V., Radu C. V.
	Transfer of tritium in the environment after accidental releases from nuclear facilities, Report of Working Group 7 of the IAEA's Environmental Modelling for Radiation Safety (EMRAS II) Programme, IAEA-TECDOC-1738,	International Atomic Energy Agency Vienna, ISBN 978–92–0–102814–3, ISSN 1011–4289, 2014, 264 pages, available at http://www-pub.iaea.org/MTCD/Publications/PDF/TE-1738_web.pdf	M. Atarashi-Andoh
	Handbook of parameter	International Atomic Energy Agency Vienna, ISBN	P. Anderson

	values for the prediction of radionuclide transfer to wildlife, Technical Report Series no. 479,.	978–92–0–100714–8, ISSN 0074–1914, 2014, 211 pages, available at http://www-pub.iaea.org/MTCD/Publications/PDF/Trs479_web.pdf	
	TRANSFER OF TRITIUM IN THE ENVIRONMENT AFTER ACCIDENTAL RELEASES FROM NUCLEAR FACILITIES, Report of Working Group 7 "Tritium Accidents" of EMRAS II Topical Heading, Approaches for Assessing Emergency Situations Environmental Modelling for RAdiation Safety (EMRAS II) Programme	International Atomic Energy Agency, ISBN 92-0-ZZZZZZ-Z, 2013 (in print), 264 pages	M. Atarashi-Andoh, V. Berkovskyy, P. Cortes, J. Duran, D. Galeriu, P. Guetat, S.B. Kim, V. Korolevych, F. Lamego Simões Filho, S. Le Dizès, A. Melintescu, H. Nagai, M. Ota, L. Patryl, F. Siclet, S. Strack
	PN 09 37 03 02		
	- în ţară: - în străinătate: 1. Licence Applications for Low and Intermediate Level Waste Predisposal Facilities : A Manual for Operators TECDOC 1619	IAEA Publications	Contributor : Felicia Dragolici, International Team
	- în ţară: Analiza sistemelor de depozitare finala a deseurilor radioactive in roca de granit - în străinătate:	AOSR	Pavelescu Alexandru Octavian

4.6. Manifestări ştiinţifice:

Nr. crt.	Manifestări ştiinţifice	Număr de manifestări	Număr de comunicări
	a) congrese internaţionale:	**85**	**119**
	b) simpozioane:	**41**	**70**
	c) seminarii, conferinţe;	**336**	**431**
	d) workshop:	**150**	**190**

4.7. Brevete rezultate din tematica de cercetare:

Nr. crt.	Specificaţie	Brevete înregistrate (nr.)	Brevete acordate (nr.)	Brevete vândute (nr.)
	PN 09 37 01 03			
	-in tara	6	6	
	PN 09 37 02 02			
	- în ţară:	1	1	**-**
	PN 09 37 02 04			
	- în ţară:	1	1	
	PN 09 37 02 06			
	-in tara	4	**2**	
	PN 09 37 03 02			
	-in tara	2	**2**	

	PN 09 37 03 01			
	- în țară:	7	2	
	TOTAL:	**21**	**14**	

5. Aprecieri asupra derulării şi propuneri :

Derularea programului Nucleu NIFIN perioada 2009-2015 a decurs in conditii bune, rezultatele stiintifice obtinute fiind cele preconizate in proiectele propuse si in limita finantarilor acordate. Apreciem in continuare ca acest tip de finantare este absolut necesar pentru institutele nationale de cercetare si dezvoltare si permite desfasurarea de activitati in vederea cresterii potentialului de cercetare propriu, implicarea in necesitatile actuale si de perspectiva ale Romaniei, indeplinirea obligatiilor asumate prin acorduri internationale si cresterea participarii institutului la programele nationale din cadrul PNCDI si a programelor europene. Sustinem cu toata taria ca finantarile prin Programele Nucleu sa fie mai previzibile, atat ca fonduri alocate, cat si ca termene la care ele sunt acordate. Fara aceste conditii nu se poate realiza o buna coerenta a programelor proprii de CDI conforme cu prevederile SNCDI, HG 929/2014 si a Programului National de CDI.

DIRECTOR GENERAL, **DIRECTOR DE PROGRAM,** **DIRECTOR ECONOMIC,**

Acad. Nicolae V. Zamfir dr. Livius Trache Ec. Alexandru Popescu

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