



CEA-IFA General Cooperation Agreement for Scientific Research

Signing Ceremony, Bucharest, Dec. 2, 2009



Presentation by IFIN-HH

Vlad Avrigeanu

***'Horia Hulubei' National Institute of Physics and Nuclear Engineering
(IFIN-HH), P.O. Box MG-6, Bucharest-Magurele***

www.ifin.ro



IFIN-HH Mission

IFIN-HH is a public research organization dedicated to research and development in physical and natural sciences, mainly Nuclear Physics and Nuclear Engineering, and in related areas including Astrophysics and Particle Physics, Field Theory, Mathematical and Computational Physics, Atomic Physics and Physics of Condensed Matter, Life and Environmental Physics. In all these fields, IFIN-HH conducts theoretical and experimental research.

Large Scale Facilities

- U120 Cyclotron
- FN-15 Tandem Accelerator
- Radioisotope Production Center
- Nuclear Waste Processing Center
- National Radioactive Waste Repository
- IRASM - Multipurpose Irradiation Facility
- VVRS Reactor - in decommissioning



TANDEM



Computing facilities
Library

Basic & Applied Research

- **Theoretical Physics:** nuclei, fields & particles, condensed matter, nonlinear phenomena, mathematical & computational physics;
- **Nuclear Physics:** structure & reaction mechanisms, hadronic matter, ion beam analysis, neutron diffraction, nuclear & atomic data, nuclear astrophysics, advanced detection systems;
- **Particle Physics:** calorimetry, Monte Carlo simulations, object oriented software, statistical data analysis, phenomenology;
- **Life & Environmental Physics:** low-dose radiobiology, nuclear risk, geophysical migration, control of soil erosion, dosimetry and radiation metrology.

Production & Services

- Radioisotopes & Radiopharmaceuticals
- Technological Irradiations
- Radioactive Waste Treatment & Storage
- Decommissioning of Nuclear Instalations

Other Activities

- Nuclear & Vacuum Engineering
- Informatics & Communications
- Training in Nuclear Activities



Excellence in Research ...

- ... for Nuclear Impact on People, Environment and Material Goods
- ... on Nuclear Techniques and Methods for Material Analysis, Description and Certification
- ... on Nuclear Structure and Application
- ... on Materials and Biomaterials
- ... on Nuclear Interaction and Hadronic Matter

International Collaborations

With international institutions:

- CERN (Geneva, Switzerland)
- EU (Brussels, Belgium)
- IAEA (Vienna, Austria)
- ICTP (Trieste, Italy)
- JRC (Ispra, Italy)
- INFN (Italy)
- GSI (Darmstadt, Germany)
- IN2P3 (Paris, France)
- GANIL (Caen, France)

With universities and research centers from abroad:

- Europe - 50
- USA & Canada - 11
- Asia - 3

Member of:

- JINR (Dubna, Russia)
- FAIR (Darmstadt, Germany)

Participation in large scale international experiments

- ATLAS, ALICE, LHC-b, DIRAC, FOPI, LCG, GASP, KASCADE, SPIRAL2

and projects

+CEA!

Around 250 publications / year in international journals

While focusing its mission on advanced investigations in atomic and sub-atomic Physics, IFIN-HH is also committed to widening the positive impact of the Nuclear on industry, other business areas, as well as on the society at large, via a diversified offer of unique professional services. Various applications of nuclear physics and spin-offs of basic nuclear research enable the institute to not only play an active promoter of domestic progress and modernity, but also bring a significant contribution to the public acceptance of the Nuclear. In tune with the mainstream topical research, IFIN-HH is asserting itself as a valid partner, in the realm of the Euro-Atlantic science and technology endeavor.

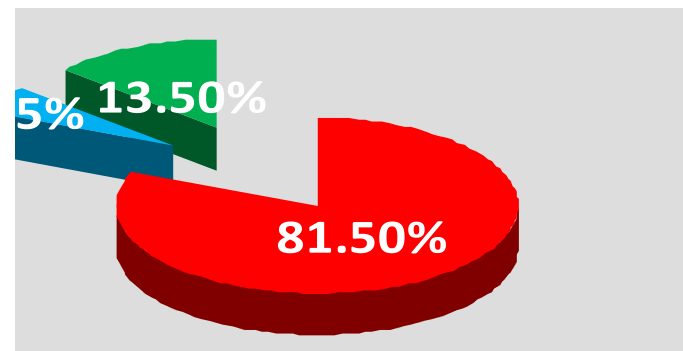


IFIN-HH changes since 2007

(1/5)

■ Personnel

Total	772 682 (permanent 554)
R&D	431
Researchers	267
PhD	172
PhD Students	55
PhD Advisors	25
Res. Assistants	85
Technicians	79



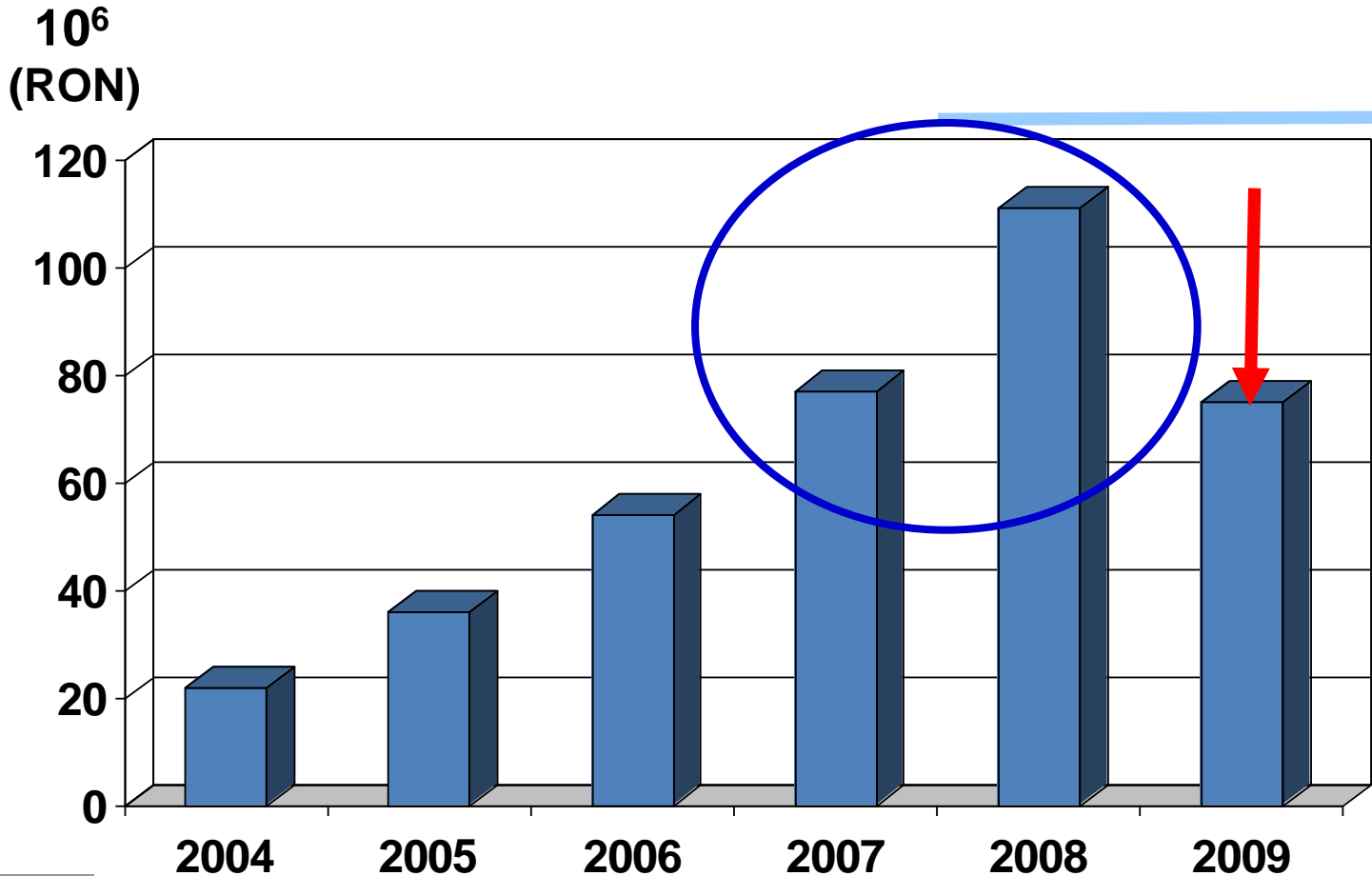
■ **Research Activity**

■ **Microproduction and Services**

■ **Subventions for National Interest Installations**



■ Budget



1€=4.2 RON



IFIN-HH changes since 2007

(3/5)

Make known the offered opportunities:

http://www.nipne.ro/

Horia Hulubei National Institute of Physics and Nuclear Engineering - IFIN HH
... where the first Romanian computer was made (1955)

About Us | Research | Facilities | International Cooperation | Events | Careers | Community | Library

Research Areas
Certified Laboratories

International Cooperation
Partnerships
Services
Facilities

General Seminar
Conferences

Job Opportunities
Doctoral Studies

Management & Personnel
Brief History
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EURATOM-MEDC
PANS - Book Nucleus
EC Education & Training
Fonduri noi, reguli mai bune
Practical Guide to EU Funding [pdf] [CORDIS]

With a contribution of almost 10% of the national scientific output, IFIN-HH is one of the most important public R&D organizations in Romania. The institute is dedicated to the research and development in physical and natural sciences, mainly Nuclear Physics and Nuclear Engineering, and in related areas including Astrophysics and Particle Physics, Field Theory, Mathematical and Computational Physics, Atomic Physics and Physics of Condensed Matter, Life and Environmental Physics. In all these fields, IFIN-HH conducts theoretical and experimental research.

NOU! Laboratoare certificate din cadrul departamentelor IFIN-HH **NOU!** Concurs pentru ocuparea a doua posturi de consilieri

Workshops / Conferences

November 13, 2009 - Magurele (Bucharest), Romania
Improving the Dialogue with Society on Scientific Issues
[View the poster](#)

October 30, 2009 - Bucharest, Romania
Utilizarea si eficienta biomaterialelor in aplicatii chirurgicale. Romanian BIOMATERIALS DATA-BASE
[Visit the website](#)

August 23-30, 2009 - Sibiu, Romania
Trends in nanoscience: theory, experiment, technology
[Visit the website](#)

July 8, 2009 - Bucharest, Romania
Seminar organised on the occasion of the State Visit of Their Majesties the King and Queen of the Belgians Nuclear Energy and the environment - Energy resources for the future-the Belgian and Romanian perspectives
[Visit the website](#)

General Seminar

21 October 2009 at 11:00 in Tandem Seminar Room
Quantum Biology, Water and Living Cells (Eugen Preoteasa - IFIN-HH)

15 October 2009 at 10:30 in Tandem Room
What is the Future for Ultra-High Intensity Laser Science? (Prof. Ken Ledingham - SUPA Physics, University of Strathclyde, Glasgow)

14 October 2009 at 11:00 in Tandem Seminar Room
Sean McCarthy, 'How to design a successful strategy and undertake research at a European Level', Vienna, Austria, 22-24 September 2009 (Intro: Dr. Vlad Avrigeanu (DFN))

29 September 2009 at 11:00 in Tandem Seminar Room
Proiectul ELI si Fizica Nucleara (Dr. Nicolae Marginean - IFIN-HH)

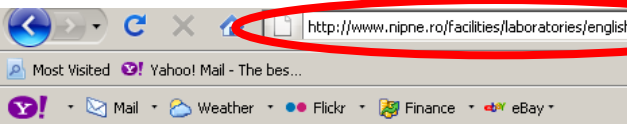


General Manager Nicolae V. Zamfir PhD Corresponding Member of the Romanian Academy





Make known the offer



IFIN-HH
IFIN-HH Laboratories
Ionizing Radiation Calibration & Testing Laboratory
Laboratory for Testing and Certification of Compliance for Radiopharmaceuticals, Radiochemicals and Radioactive Sources
Radionuclide Metrology Laboratory
Laboratory for Elemental and Structural Analysis of Nanostructured Materials using Rutherford Back Scattering Spectrometry (RBS)
ACTIVA-N Material Analysis Laboratory
Laboratory for Biocompatibility Evaluation of Medical Materials and Devices
Environmental and Personnel Dosimetry Laboratory
Laboratory for α , β , γ Spectrometry and Radon Measurements
Whole Body Monitoring Unit
Low Background Gamma-Ray Spectrometry Laboratory
Spectroscopy Analysis Laboratory
Microbiology Laboratory
Physical and Chemical Testing Laboratory
Detection of Irradiated Foods Laboratory



Certified Laboratories within the IFIN-HH Departments

- **Ionizing Radiation Calibration** (LERI/DRMR, bercea@nipne.ro) [calibration, dosimeter/radiometric instruments; RENAR accreditation, CNCAN designation]
- **Ionizing Radiation Testing** (LIRI/DRMR, bercea@nipne.ro) [tests, instrument, radioactive sources (equipment), materials; RENAR, CNCAN]
- **Testing and Certification of Compliance Radiopharmaceuticals, Radiochemical and Radioactive Sources** (CPRLAB/DRMR, catalinac@nipne.ro) [analysis radionuclidic/radiochemical, radioisotopes, sealed sources of radiation, radiopharmaceuticals]
- **Radionuclide Metrology** (LMRE-LMRI/DRMR, msahagia@nipne.ro) [radionuclide standards, calibration, testing-calibration, radionuclide measurements]
- **Rutherford Back Scattering Spectrometry** (RBSL/DFNA, ddudu@nipne.ro) [Rutherford Back Scattering, thin layers, depth profiling, interface mixing]
- **Material Analysis** (ACTIVA-N/DFNA, cincue@nipne.ro) [activity evaluation, elemental analysis, gamma-ray spectrometry, neutron activation, OES, XRF]
- **Biocompatibility Evaluation of Medical Materials and Devices** (BIOEVAL/DFVM, mradu@nipne.ro) [biocompatibility, medical devices, cytotoxicity tests, allergenicity test]
- **Environment and Personnel Dosimetry** (LDPM/DFVM, stoc@nipne.ro) [radioactivity, monitoring, dosimetry, environment, personnel]
- **α , β , γ Spectrometry and Radon Measurements** (SALMROM/DFVM, rcalin@nipne.ro) [alpha, beta, gamma, radon, spectrometry, global measurements]
- **Whole Body Monitoring** (USCIR/DFVM, saizu@nipne.ro) [whole body counter, internal radioactive contamination monitoring, internal dosimetry]
- **Low Background Gamma-Ray Spectrometry** (GAMASPEC/DFN, apantel@nipne.ro) [gamma-ray spectrometry, radionuclide analysis, environmental radioactivity, NAA]
- **Spectrometry Analysis** (LAS/DMDR, fdrag@nipne.ro) [spectrometry analysis, radioactive source examination, gamma-ray spectrometry]
- **Microbiology** (LM/IRASM, cponata@nipne.ro) [microbiological tests, validation of irradiation sterilization; RENAR, ANM authorization]
- **Physical and Chemical Analysis** (LFC/IRASM, cponata@nipne.ro) [color, mechanical tests, GC-MS, TG, DSC, DTA, FT-IR, FT-Raman, EPR, TL, OSL]
- **Irradiated Foodstuff Detection** (LDAI/IRASM, cponata@nipne.ro) [detection, irradiated foodstuff, 10 ISO standards]

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- VVRS Nuclear Research Reactor (under decommissioning)



<http://www.nipne.ro/about/staff/>

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5 records were found.

1. ['Horia Hulubei' National Institute for Physics and Nuclear Engineering \(IFIN-HH\)](#)
Collaboration title: Applied Nuclear Physics Research and Technological Transfer **at IFIN-HH**
Country: ROMANIA
2. ['Horia Hulubei' National Institute for Physics and Nuclear Engineering \(IFIN-HH\)](#)
Collaboration title: Nuclear Safety Management **at IFIN-HH**
Country: ROMANIA
3. ['Horia Hulubei' National Institute for Physics and Nuclear Engineering \(IFIN-HH\)](#)
Collaboration title: International cooperation, science policy and communication **at IFIN-HH**
Country: ROMANIA
4. ['Horia Hulubei' National Institute for Physics and Nuclear Engineering \(IFIN-HH\)](#)
Collaboration title: Theoretical and Nuclear Physics Basic Research **at IFIN-HH**
Country: ROMANIA

FP7 EURATOM-Fission projects (2007-08 Calls) CO: FR/12, DE/8, UK/5, BE/3, IT/1, NL/1, SE/1



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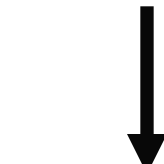
CEA

	Project Acronym	Project Title	URL	Project Coordinator (Organisation)	RCN*
Management of radioactive waste					
Geological disposal					
1	RECOZY [2008]	Redox phenomena controlling systems	www.recozy.eu	Forschungszentrum Karlsruhe GmbH, Germany	88406
2	FORGE [2009]	Fate of repository gases	[FP7 > Find project]	Natural Environment Research Council, UK	89382
3	EBSSYN [2008]	A joint EC/NEA EBS project synthesis report	[FP7 > Find project]	Terrasalus Limited, UK	88921
4	CARBOWASTE [2008]	Treatment and disposal of irradiated graphite and other carbonaceous waste	www.carbowaste.eu	Forschungszentrum Juelich GmbH, Germany	88385
Partitioning and transmutation					
5	FAIRFUELS [2009]	Fabrication, irradiation and reprocessing of fuels & targets for transmutation	[FP7 > Find project]	Nuclear Research And Consultancy Group, Netherlands	90990
6	ACSEPT [2008]	Actinide reCYcling by SEParation and Transmutation	www.acsept.org	Commissariat a l'Energie Atomique (CEA), France	85734
Reactor system:					
Nuclear (installation) safety					
7	SARNET2 [2009]	Severe accident research network of excellence 2	[FP7 > Find project]	Institut de Radioprotection et de Surete Nucleaire, France	91296
8	PERFORM 60 [2009]	Prediction of the effects of radiation for reactor pressure vessel and in-core materials - 60 years foreseen plant lifetime	[FP7 > Find project]	Electricite de France S.A., France	89385
9	ASAMPSA2 [2008]	Advanced safety assessment methodologies : level 2 PSA (European best practices L2 PSA guidelines)	www.asampsa2.eu	Institut de Radioprotection et de Surete Nucleaire, France	85738
10	NURISP [2009]	Nuclear reactor integrated simulation project	[FP7 > Find project]	Commissariat a l'Energie Atomique (CEA), France	89384
11	MMOTION [2009]	Man-machine-organisation through innovative orientations for nuclear energy	www.mmotion-project.org	Electricite de France S.A., France	89351
Advanced nuclear systems					
12	GETMAT [2008]	Gen IV and transmutation materials	http://nuclear-server.ka.fzk.de/getmat	Forschungszentrum Karlsruhe GmbH, Germany	85745
13	F-BRIDGE [2008]	Basic research for innovative fuels design for GEN IV systems	www.f-bridge.eu	Commissariat a l'Energie Atomique (CEA), France	88393
14	CP-ESFR [2009]	Collaborative project on European sodium fast reactor	www.f-bridge.eu	Commissariat a l'Energie Atomique (CEA), France	92070
Radiation protection					
15	DETECT [2009]	Design of optimised systems for monitoring of radiation and radioactivity in case of a nuclear or radiological emergency in Europe	[FP7 > Find project]	Studiecentrum Voor Kernenergie, Belgium	91297
16	MADEIRA [2008]	Minimizing activity and dose with enhanced image quality by radiopharmaceutical administration	www.madeira-project.eu	HelmholtzZentrum Munchen German Research Center for Environmental Health, Germany	85744
17	STORE [2009]	Sustaining access to tissues and data from radiobiological experiments	[FP7 > Find project]	Bundesamt für Strahlenschutz, Germany	89386
18	CARDIORISK [2008]	The mechanisms of cardiovascular risks after low radiation doses	www.cardiorisk.eu	Technische Universität München - Klinikum Rechts der Isar, Germany	85736
19	ORAMED [2008]	Optimization of radiation protection of medical staff	www.oramed-fp7.eu	Studiecentrum voor Kernenergie - Centre d'etude de l'Energie Nucleaire, Belgium	85735
20	HLEG [2008]	High level expert group on European low dose risk research	[FP7 > Find project]	Bundesamt Fur Strahlenschutz, Germany	88097
21	CHILD-MED-RAD[2008]	Prospective cohort studies of children with substantial medical diagnostic exposure	www.iarc.fr/ENG/Units/RCA.php	International Agency for Research on Cancer, France	88439
22	TENEB [2009]	Towards a European network of excellence in biological dosimetry	[FP7 > Find project]	Stockholms Universitet, Sweden	89956
23	ALLEGRO [2009]	Early and late health risks to normal/healthy tissues from the use of existing and emerging techniques for radiation therapy	[FP7 > Find project]	Universita degli Studi di Pavia, Italy	89383
24	ARCH [2008]	Agenda for research on chernobyl health (ARCH)	http://arch.iarc.fr	International Agency for Research on Cancer, France	89341
25	BREAST CT [2008]	Dedicated CT of the female breast: feasibility, optimization and comparison to standard x-ray procedures (digital mammography and tomosynthesis)	www.imp.uni-erlangen.de/BreastCT	Friedrich-Alexander Universitaet Erlangen-Nurnberg, Germany	85756
26	SEDENTEXCT [2008]	Safety and efficacy of a new and emerging dental X-ray modality+C11	www.sedentext.eu	University of Manchester, UK	85747
27	ERCSC-CHAIR-SUP [2008]	Support to the chair of the ERC scientific council 2008	[FP7 > Find project]	Imperial College of Science, Technology and Medicine, UK	92223
Infrastructure:					
28	JHR-CP [2009]	Jules Horowitz reactor collaborative project : contribution to the design and construction of new research infrastructure	http://www.cad.cea.fr/rjh/	Commissariat a l'Energie Atomique (CEA), France	89338
29	EUFRAF [2008]	European facility for innovative reactor and transmutation neutron data	imm.jrc.ec.europa.eu/eufrat	Commission of the European Communities - JRC, Belgium	88553
30	CTB [2008]	The chernobyl tissue bank coordinating international research on radiation induced thyroid cancer	www.chernobyltissuebank.com	Imperial College of Science, Technology and Medicine, UK	88259
31	SNE-TP OFFICE [2008]	Secretariat of the European sustainable nuclear energy technology platform	[FP7 > Find project]	LaGrange-LGI Consulting, France	91010



IFIN-HH key work management

KEY ISSUE



HUMAN RESOURCES



NuclInfo'Day 2009

Resursele umane, cheia dezvoltării durabile a domeniului nuclear

Organizator
Agencia Nucleară
www.agentianucleara.ro

Co-Organizatori
Universitatea din Pitești
Institutul Național de Fizică și Inginerie Nucleară «Horia Hulubei»
Forumul Atomic Român - ROMATOM

11 - 12 iunie 2009
Pitești



Top facilities for top scientists

Capacities
Budget: €4.2 billion

The "Capacities" programme aims to optimise the use and development of research infrastructures, while enhancing the innovative capacities of SMEs to benefit from research. The programme is designed to support regional research-driven clusters and at the same time unlock the research potential in the EU's convergence and outermost regions. Support is to be provided for horizontal actions and measures underlining international cooperation. Finally, European society and science should be brought closer under the initiatives of the "Capacities" programme.

"Capacities" will operate in seven broad areas:

- Research infrastructures;
- Research for the benefit of SMEs;
- Regions of knowledge and support for regional research-driven clusters;
- Research potential of Convergence Regions;
- Science in society;
- Support to the coherent development of research policies;
- International co-operation.

'Capacities' in FP7

www.ec.europa.eu/research



EU work



EU-like evaluation



EU pay



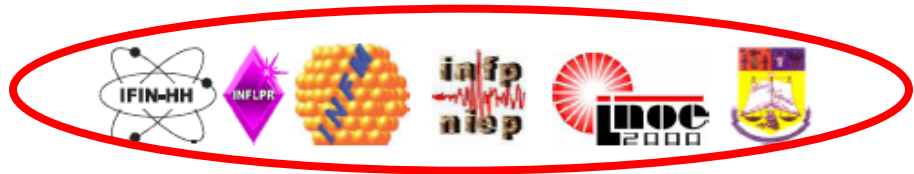
IFIN-HH proposal for a specific agreement

(Conclusion)

- **Common work** within Joint Research Projects (FP7)
 - ❖ IFIN-HH - observer within ongoing projects
 - ❖ IFIN-HH - partner within further project proposals
- **MS/PhD students** exchange for periods of 6-36 months
- **Experienced researchers:** - basic work on own site
- short visits of 1-2 months



Invitation



1949 – 2009
60 DE ANI DE FIZICĂ LA MĂGURELE
14 decembrie 2009

București, 12 noiembrie 2009

Doamnei/Domnului

Stimată Doamnă / Stimate Domnule

Cu 60 de ani în urmă, la inițiativa Profesorului Horia Hulubei, unul dintre cei mai mari oameni de știință pe care i-a avut vreedată România, lua ființă INSTITUTUL DE FIZICĂ AL ACADEMIEI, primul adevărat institut de cercetare științifică din țara noastră, ce avea după doar câțiva ani, să-și schimbe numele în INSTITUTUL DE FIZICĂ ATOMICĂ. Viziunea Profesorului Hulubei reprezintă actul de naștere al celei mai ample și mai complexe comunități de cercetare din Europa de Sud-Est, integrând la Măgurele cele mai importante și active ramuri ale științei și oferind generațiilor tinere la acel moment prima oportunitate de a desfășura activități de cercetare fundamentală și aplicată la cele mai moderne standarde internaționale.

Cu trecerea timpului, Platforma Măgurele s-a impus ca un brand care există și impune și astăzi.

Este o mare onoare pentru noi și o mare bucurie în același timp, să vă adresăm invitația de a fi împreună pentru a sărbători aniversarea acestor șase decenii de muncă și de împliniri de care beneficiază întreaga societate românească.

Ca un omagiu adus Profesorului Horia Hulubei și tuturor celor care l-au urmat la conducerea fizicii românești de la Măgurele, manifestările vor debuta la ora 9.00 cu inaugurarea noului sediu al Bibliotecii Naționale de Fizică, ceremonie urmată de simpozionul aniversar care va fi găzduit de Aula Facultății de Fizică.



THANK YOU
for your attention