EUROPEAN UNION

GOVERNMENT OF ROMANIA

Structural Instruments 2007-2013

Sectoral Operational Programme "Increase of Economic Competitiveness"

"Investments for Your Future!"

IFIN-HH

Extreme Light Infrastructure - Nuclear Physics (ELI-NP) - Phase I

eli Nuclear Physics

Project co-financed by the European Regional Development Fund

ELI-NP Magurele High Tech Cluster

ELI-NP Team, December 10, 2013

Horia Hulubei National Institute of Physics and Nuclear Engineering

www.ifin.ro

Horia Hulubei
(1896-1972)
Founder and First Director of the Institute

Contribution to the study of quantum diffusion of X-rays
(Ph.D. Thesis, Paris, 1933).
Supervisor: Jean Perrin (Nobel Prize).
Chairman: Marie Curie (Nobel Prize).

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

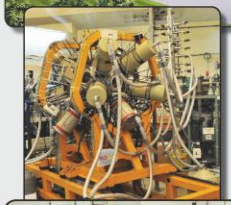
Other Activities

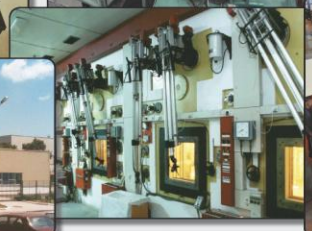
- ☑ Nuclear & Vacuum Engineering
- ☑ Informatics & Communications
- ☑ Training in Nuclear Activities

Large Scale Facilities

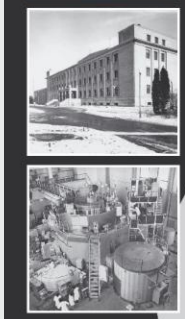
U120 and TR19 Cyclotrons
9, 3 and 1MV Tandem Accelerators
Radioisotope Production Center
Nuclear Waste Processing Center
National Radioactive Waste Repository
IRASM - Multipurpose Irradiation Facility
VVRS Reactor - in decommissioning

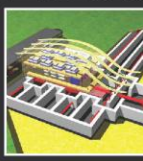
Computing facilities (GRID)
National Physics Library

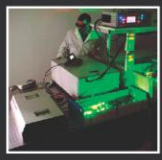




Scientific events





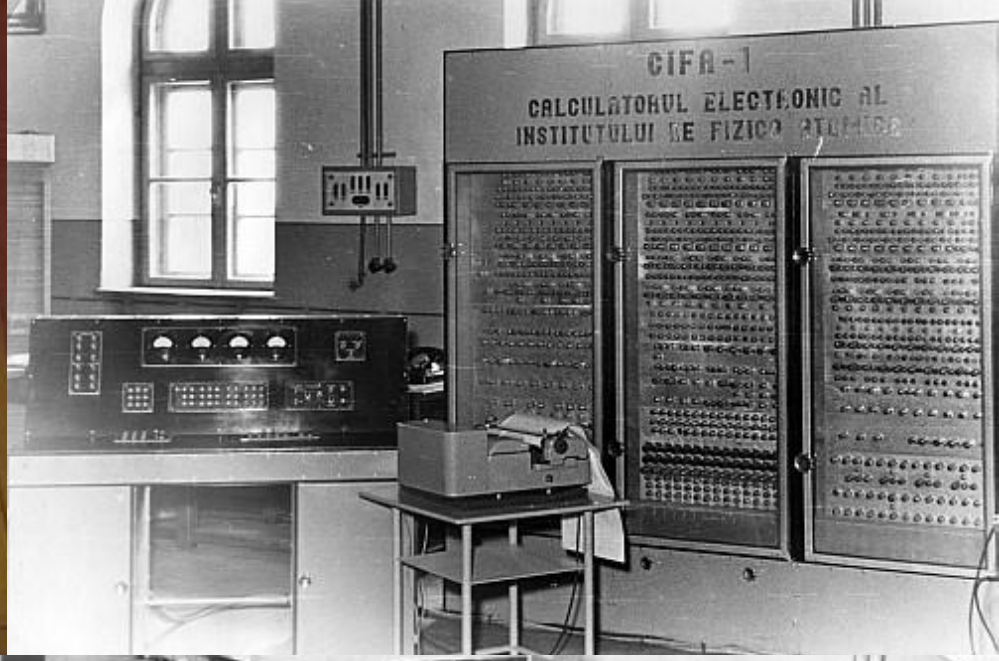


60 ani de Fizică la Măgurele

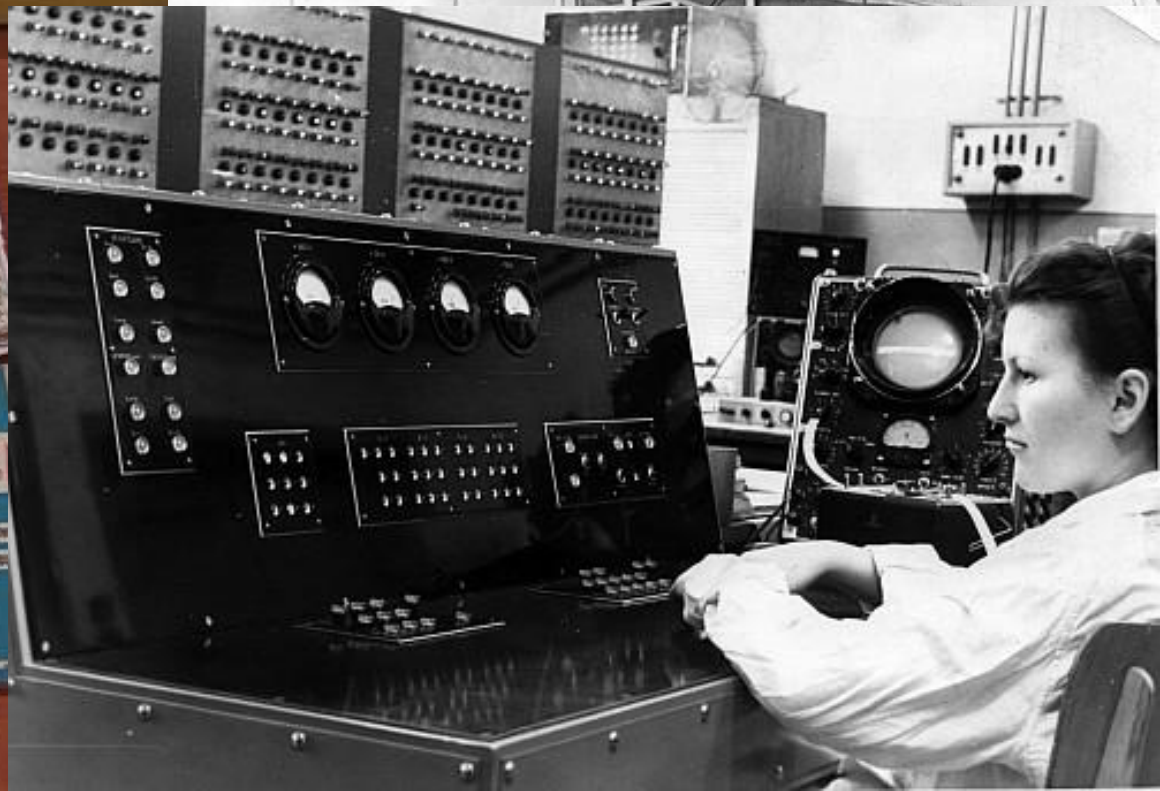
1949 — 2009

14 decembrie 2009, ora 10^{00} Aula Facultății de Fizică

DETECTAREA
ȘI
MĂSURAREA RADIAȚIILOR
NUCLEARE
de protecție
nucleară
REZONANȚA
PARAMAGNETICĂ
ELECTRONICĂ
INSTRUCȚIUNI
DECONTAMINAREA

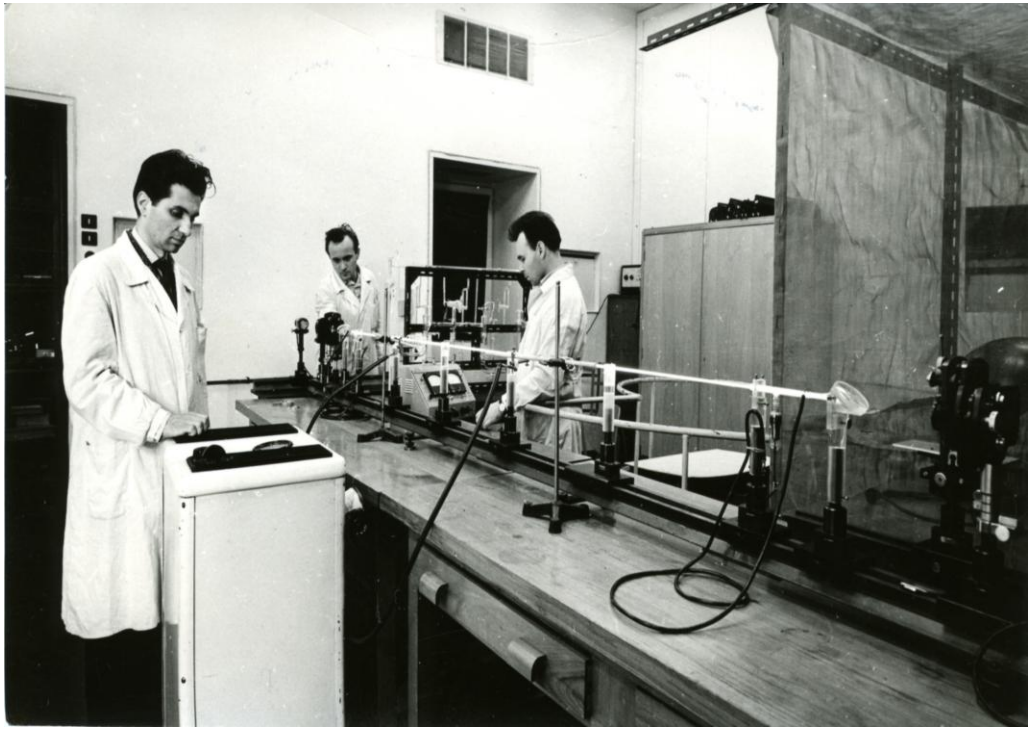

CIFA-1
CALCULATORUL ELECTRONIC AL
INSTITUTULUI DE FIZICO ATOMICĂ

RADIOBIOLOGIA
ȘI
BIOLOGIA MOLECULARĂ
RADIONUCLIZII
REACȚII CHIMICE INDUSE
DE RADIAȚIILE IONIZANTE
C. MĂNTESCU ◻ CONSTANTINESCU
CHIMIA
RADIAȚIILOR



October 20, 1962 – the first Romanian (He-Ne) Laser was obtained by a team headed by Prof. Ion Agârbiceanu at the Institute of Atomic Physics, Bucharest

ION AGÂRBICEANU (1907 – 1971)

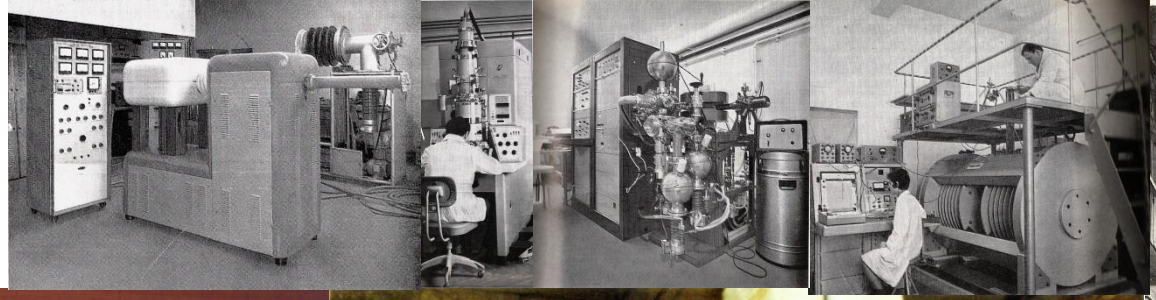


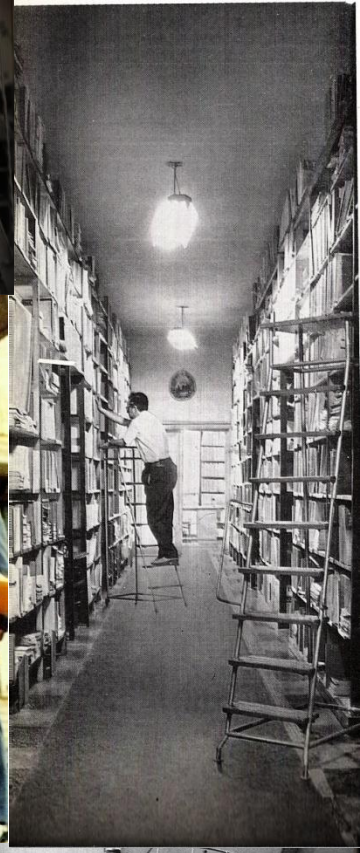
Laurenţiu Blănaru, Virgil Vasiliu and Anton Agafiţei (from left to right)

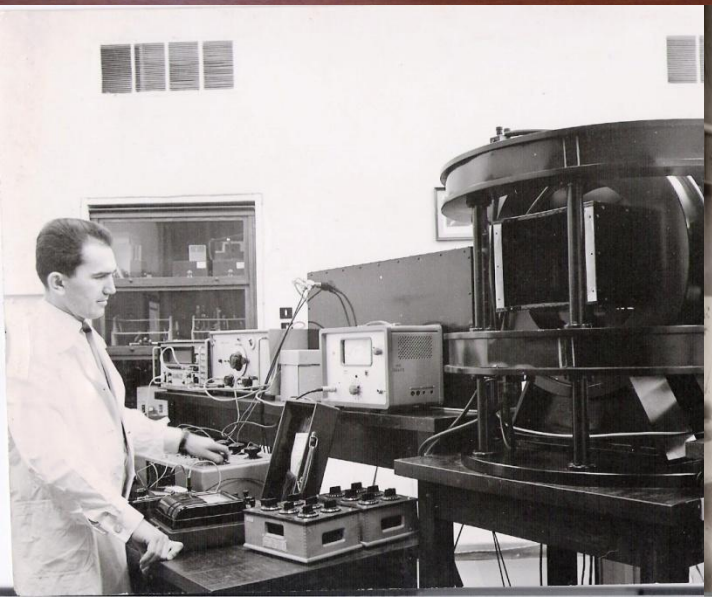
The achievement of this He-Ne laser, less than two years after that of Javan, Bennett and Herriott was a direct consequence of the scientific background (advanced gas spectroscopy - theory and experiments, vacuum deposition, Fabry-Pérot etalons and radiation detection) of the earlier Laboratory *"Optical Methods in Nuclear Physics"* at the Institute of Atomic Physics.

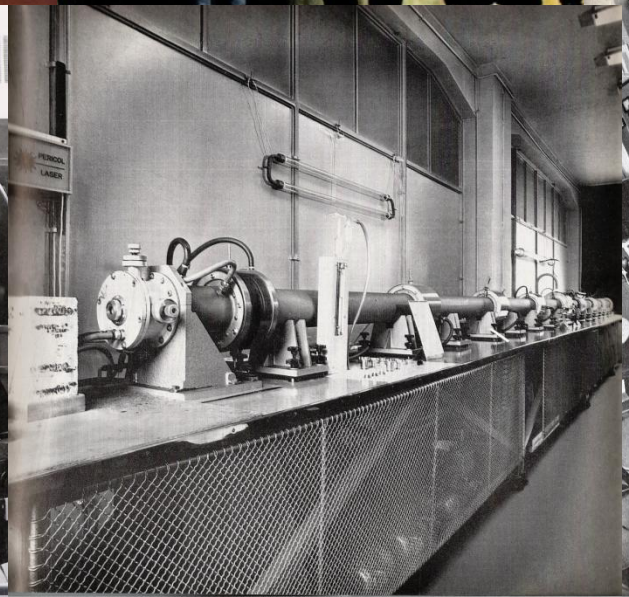
Coutesy of Acad. Valentin.I. Vlad

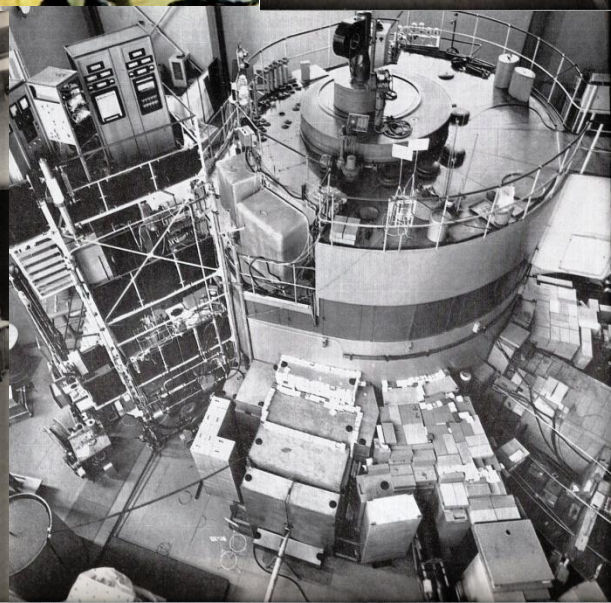
From IFA to ICEFIZ







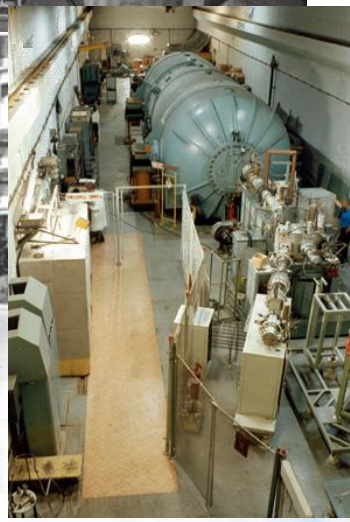




Investment waves that shaped the Magurele Platform as a National Lab

- the mid-fifties, when the Institute of Atomic Physics was founded, with large-scale installations –a premiere for South-Eastern Europe: the Nuclear Reactor, the Cyclotron, the Betatron and the first electronic computer, CIFA-1,

- followed by the second wave, during the seventies, with new and modern departments, among which one should mention the Tandem Accelerator, the Center for Radioisotope Production the Center for Nuclear Medicine, the Radioactive Waste Processing Unit a.o.



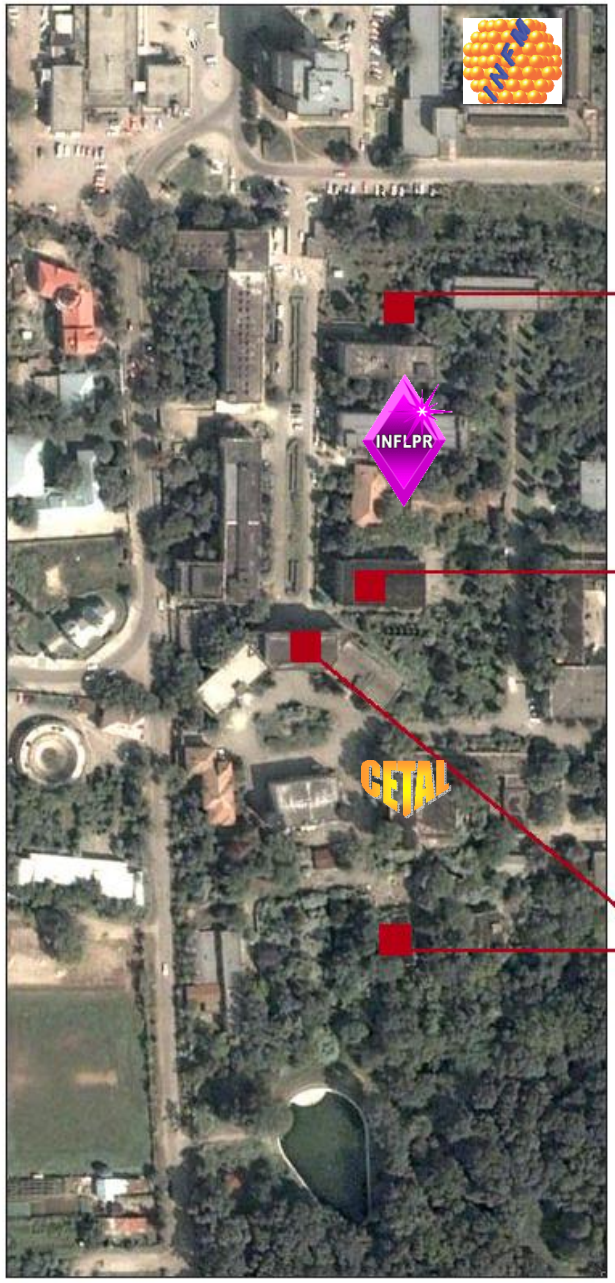
In that time also the Magurele Platform has been constructed, socially integrating the students of the Faculty of Physics and researchers of different generations who chose not only to work but also to live here.

It was in the logic of this history that a third wave should follow, with features reflecting the new political and social context as well as the new statute of Romania in Europe.

2009-2013 - a major investment project “Infrastructure development for frontier research in nuclear physics and related fields”
2012 the implementation of the Extreme Light Infrastructure (ELI-NP) project.

They were great, tragic, saints… Ei au fost mari, tragici, sfinti…
Parents to our parents being. Parintilor nostri le-au fost parinti.
Well, what about us? Bun, dar cu noi cum rămâne?

(Nichita Stanescu, Din nou, noi)



Research Infrastructure Investments
planned
or in progress

High Performance Computing Centre

Radiopharmaceutical Research Centre

Centre for Radiological Surveillance of the Environment

Physics National Library

Radiocarbon center for environment and biosciences **TANDIMED**

TRITIULAB

Center of Nuclear Spectrometry for Energy, Environment, Materials and Health

ICTP@Ro

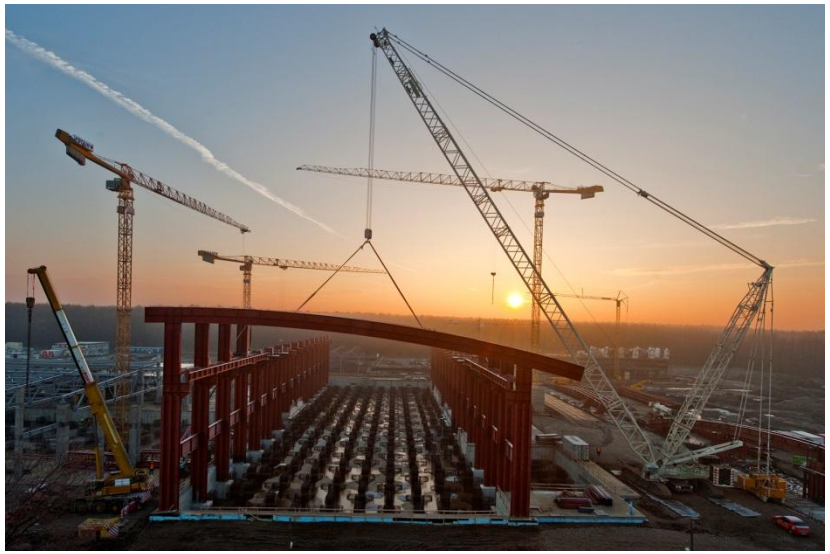
Ro@NUSTAR

Hadron Physics Centre

To turn its strength to the best account, the institute concentrates resources on two directions: (a) steadily develop a sound in-house capability to get and stay in the forefront of nuclear science and technology; and (ii) substantively participate in the European collaborations centered on Large Scale Facilities such as GSI-Darmstadt (Germany), GANIL-Caen (France), CERN (Geneva), JINR (Dubna). This is a strategy meant to harmonize limited domestic resources with the tall orders of the contemporary, top-level nuclear physics research, and the imperative need for Continental co-operation and integration.

The birth of Extreme Light

eli
Nuclear Physics



December 6th, 2013 Magurele.

ELI-NP Industrial Forum

- Body promoting relationships with local and foreign companies.
- Objective of the ELI-NP team: focus on the development with the business and industrial sector (promotion of contractual research, technology transfer and commercialisation of results, etc.).
- Associating local companies with foreign companies an important objective of the ELI-NP Industrial Forum.
- Members are encouraged to set up initiatives consistent with the objectives of the ELI-NP project in terms of socio-economic impact (local development, creation of jobs, etc.).
- Further initiatives, such as consulting services provided by ELI-NP experts to companies, can naturally be negotiated within the framework of the ELI-NP Industrial Forum.

1st Meeting: April 23th, 2012. Magurele

Excerpts from the Minute of the Meeting:

- organizing a workshop/seminar having as main subject creating a cluster and, in this respect, it was decided to be announced earlier in order to have a broader audience and to present in more details the proposal to form a cluster;
- making the best efforts to organize and put in practice the cluster in June and preparing it within a workshop/seminar to be organized … with the main goal to create the cluster for ELI-NP Project and a future strategy related to its functioning;
- signing an MoU stating the principles of cooperation between the members of the Industrial Forum and the objectives established for the future in the context of its mission;

Măgurele High Tech Cluster (MHTC)

Urmărind valorificarea extraordinarelor oportunităţi pe care le deschide proiectul ELI-NP atât în aria cercetării cât şi ca relevanţă şi impact în societate (www.eli-np.ro/), s-au intreprins 4 actiuni concurente :

a) dezvoltarea unui centru de transfer tehnologic si marketing CTTM (http://www.nipne.ro/cttm/index.php)

b) promovarea şi în fine constituirea unei asociaţii deschise de entităţi de cercetare şi economice : Măgurele High Tech Cluster – semnarea actului constitutiv şi a statutului asociaţiei de către 35 de parteneri (noiembrie 2013), procedurile de intrare în legalitate fiind în curs.

Obiectivul asociaţiei este succint exprimat în Acordul de Parteneriat : Având în vedere condiţiile favorabile dezvoltării şi cooperării create de realizarea proiectului ELI-NP, la iniţiativa IFIN-HH se propune crearea unui Cluster economic în jurul institutelor de cercetare ştiinţifică de pe Platforma de fizică din Oraşul Măgurele, având ca scop facilitarea inovării, a transferului tehnologic între sistemul de cercetare-dezvoltare şi economic, precum şi crearea unui Parc Ştiinţific şi Tehnologic.

c) stimularea unei "culturi a inovării", prin organizarea de evenimente pe această tematică: HEPTech Forum (8-9 octobrie 2013) şi Workshop HEPTech On Open Innovation (10 octombrie 2013).

(http://www.nipne.ro/cttm/meetings.php , http://www.heptech.org/ and http://knowledgetransfer.web.cern.ch/networks).

d) depunerea, la 16 octombrie 2013, a unei aplicaţii pentru obtinerea finantarii pentru initierea unui cluster inovativ, ", intitulat "ELI – NP Inovativ Cluster"

POS CCE 2007-2013, Axa Prioritară 1 „Un sistem de producţie inovativ şi ecoeficient", Domeniul major de intervenţie D1.3 „Dezvoltarea durabilă a antreprenoriatului" Operaţiunea „Sprijin pentru integrarea întreprinderilor în lanţurile de furnizori sau clustere".

ELI-NP Industrial Forum

Timeline

23rd April 2012, Magurele, National Physics Library **Industrial Forum Kick-off meeting**

27.11.2012, Bucuresti, Hotel Howard Johnson, la initiativa Consiliului Judetean Ilfov
"Dezbatere Publica privind initiativa crearii unui Cluster Stiintific in Orasul Magurele – Jud Ilfov"

11.05.2013, Magurele, Biblioteca Nationala de Fizica (BNF)
- Intalnire pregatitoare - discutii pe marginea proiectului de statut
Stabilirea denumirii: **Magurele High Tech Cluster (MHTC)**
12 06.2013 – Magurele, BNF
Convenirea scopului si a obiectivelor Statutului MHTC
22.07.2013 – Magurele, BNF
Semnarea Acordului de Parteneriat pentru constituirea MHTC
13.09.2013 – Magurele, BNF
Discutii preliminare cu privire la clauzele Statutului MHTC
18.09.2013 – Magurele, BNF
Discutii finale cu privire la clauzele Statutului MHTC
Alegerea primului Consiliu Director al MHTC (5 membrii)

April 23th, 2012 – December 10, 2013

ELI-NP Industrial Forum

10-15.10.2013 – Prezentarea Proiectului POS CCE 2007-2013, Axa Prioritară 1 „Un sistem de producţie inovativ şi ecoeficient”, Domeniul major de intervenţie D1.3 „Dezvoltarea durabilă a antreprenoriatului” .Operaţiunea „Sprijin pentru integrarea întreprinderilor în lanţurile de furnizori sau clustere”, intitulat **“ELI – NP Cluster Inovativ”** - ce vizează explicit obţinerea finanţării pentru un cluster emergent - finanţare absolut necesară pentru realizarea proiectului Măgurele High Tech Cluster.

- Semnarea Acordului de Parteneriat de constituire a ELI-NP CLUSTER INOVATIV – Entitate de Management a asociatiei MHTC

16.10.2013 – Depunerea proiectului ELI-NP CLUSTER INOVATIV

Str. Atomistilor nr. 409, Magurele, Judetul Ilfov, Tel: +40.21.404.23.03
Fax: +40.21.457.44.40, E-mail: ursui@nipne.ro, dseuleanu@fdcl.ru

Extreme Light Infrastructure – Nuclear Physics - Cluster Inovativ

18.11.2013 Semnarea Actului Constitutiv si a Statutului Asociatiei MHTC
Cei 35 de semnatari – membrii fondatori

28.11.2013 Semnarea Actului Constitutiv si a Statutului Asociatiei ELI-NP CLUSTER INOVATIV - 22 semnatari – membrii fondatori

10.12.2013 Forumul Industrial al ELI-NP

April 23th, 2012 – December 10, 2013

Membrii fondatori ai asociatiei MHTC

1. Institutul Naţional de Cercetare-Dezvoltare pentru Fizică şi Inginerie Nucleară " Horia Hulubei"- IFIN-HH,
2. Primăria Oraşului Măgurele,
3. Institutul Național de Cercetare Dezvoltare pentru Fizica Laserilor, Plasmei şi Radiației - INFLPR,
4. Fundatia pentru Democratie, Cultura si Libertate - Filiala Calaraşi
5. Institutul Național de Cercetare Dezvoltare pentru Mecatronică şi Tehnică a Măsurării - INCDMTM
6. Institutul Național de Cercetări Economice – Costin C. Kirițescu
7. Institutul Naţional de Cercetare - Dezvoltare pentru Microtehnologie IMT- Bucureşti,
8. Institutul de Fizică Atomica
9. S.C. MIRA TELECOM S.R.L.
10. S.C. ASCENDIA DESIGN S.R.L.
11. S.C. ACCENT PRO 2000 S.R.L.
12. S.C. APEL LASER S.R.L
13. S.C. NITECH S.R.L.
14. S.C. SAMWAY ELECTRONIC S.R.L.
15. S.C. TOTAL CONSTRUCȚII S.R.L.
16. S.C. MATEFIN S.R.L.
17. S.C. COM INOX S.R.L.
18. S.C. FRESH AIR S.R.L.
19. S.C. SIGMA STAR SERVICE S.R.L.
20. S.C. SIGMA PATENT STUDIO S.R.L.
21. S.C. AVITECH CO S.R.L.
22. S.C. NHN ECOINVEST S.R.L
23. S.C. CAUTIS JB'93 S.R.L.
24. Institutul Național de Cercetare Dezvoltare pentru Fizica Materialelor - INCDFM,
25. S.C. PELL AMAR COSMETICS S.R.L.
26 Institutul Național de Cercetare Dezvoltare pentru Optoelectronică – INOE 2000,
27. Institutul Național de Cercetare Dezvoltare pentru Metale Neferoase si Rare - IMNR,
28. S.C. NUCLEAR INGINERY S.R.L.
29. S.C. NUCLEAR VACUUM S.A.;
30. S.C. NANOLINE OPTICS S.R.L.
31. S.C. FIBER LASER OPTICS S.R.L.
32. Regia Autonomă Tehnologii pentru Energia Nucleară – Sucursala Centrul de Inginerie tehnologică pentru Obiective Nucleare Bucureşti Măgurele – CITON
33. Institutul Național de Cercetare - Dezvoltare pentru Fizica Pământului – INCDFP-
34. S.C. OPTOELECTRONICA-2001 S.A.
35. S.C. ELECTRO OPTIC COMPONENTS S.R.L,

Componența primului Consiliu Director al „**Măgurele High Tech Cluster**“ este următoarea:

- **Președinte - Ioan Ursu** – domiciliat în Str. Av. Ștefan Protopopescu nr. 8, bl. 3, ap. 19, sector 1, București, CNP 1570905400171, posesor CI seria RD nr. 537445, eliberată de SPCEP S1 biroul nr. 1 la data de 14.09.2007;
- **Vicepreședinte - Constantin Narcis Cătălin** – domiciliat în Str. Fizicienilor nr. 10, bl. M6, sc. 1, ap. 2, Oraș Măgurele, județ Ilfov, CNP 1780526472537, posesor CI seria IF nr. 361913, eliberată de SPCLEP Bragadiru la data de 25.06.2013;
- **Membri:**

Cristescu Cristian – domiciliat în Calea Dorobanților nr. 20-28, bl. 11, sc. B, et. 8, ap. 74, sector 1, București, CNP 1560728400069, posesor CI seria RT nr. 762924, eliberată de SPCEP S1 biroul nr. 1 la data de 25.08.2010;

Șeuleanu Ștefan Dragoș – domiciliat în Sat Tîncăbești (Com. Snagov), Str. Învățător Moga Mihai nr. 461, județ Ilfov, CNP 1620129400063, posesor CI seria IF nr. 300956, eliberată de SPCLEP Snagov la data de 29.11.2011;

Comănescu Brînduș Daniel – domiciliat în Ale. Costinești nr. 5, bl. 3, sc. A, et. 2, ap. 5, sector 5, București, CNP 1690125451543, posesor CI seria RT nr. 850067, eliberată de S.P.C.E.P. sector 5 la data de 16.01.2013;

Slușanschi Emil Ioan– domiciliat în Str. Făinari nr. 7, bl. Corp B4, et. 2, ap. 9, sector 2, București, CNP 1760611450019, posesor CI seria RT nr. 707551, eliberată de SPCEP S2 biroul nr. 1 la data de 05.01.2010;

Udrea Virgil Mircea – domiciliat în Str. Vintilă Mihăilescu nr. 15, bl. 60, sc. 1, ap. 12, sector 6, București, CNP 1491124400225, posesor CI seria RR nr. 853198, eliberată de S.P.C.E.P. sector 6 la data de 22.11.2011.

Procedura de alegere a membrilor Consiliului Director al asociației, regulile de organizare și funcționare, precum și atribuțiile sunt potrivit Statutului asociației.

Cristina Spanache – expert financiar-contabilitate **Alina Vintilă – consilier juridic**

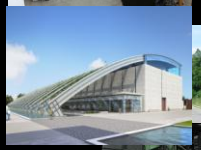
Măgurele High Tech Cluster (MHTC)

Conditii de aderare la MHTC

- Dupa constituirea asociatiei MHTC pot adera noi membri conform clauzelor precizate in Statutul asociatiei, respectiv se va convoca Adunarea Generala a MHTC unde este necesara o prezenta a membrilor asociatiei de ¾ din numarul acestora. Adoptarea hotararilor din cadrul Adunarii Generale se considera validata prin votul favorabil a majoritatii simple din totalul membrilor prezenti.

- Fiecare nou asociat va contribui la patrimoniul asociatiei cu suma de 1000 lei.

- Prevederile statutului vor fi aduse la cunostinta noilor membri si vor trebui acceptate in totalitate inainte de aderarea efectiva in asociatie.



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Document edited by
Horia Hulubei National Institute for Research and Development in Physics and Nuclear Engineering
Publication date of the document: August 2013

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