

Appendix V
To the Instructions for the Teams of experts-evaluators

PRELIMINARY/FINAL RAPORT

I	The Name of the Institution to be evaluated	National Institute of Materials Physics (INFM – Bucharest)
II	Evaluation Period	5-6 April 2012
III	Members of the Team	
	1st Evaluator information	
A	Name, Surname	Rodrigo MARTINS
B	Affiliation	University of Lisbon
	2nd Evaluator information	
A	Name, Surname	Antonio FETEIRA
B	Affiliation	University of Birmingham
	3rd Evaluator information	
A	Name, Surname	Ioannis GIAPINTZAKIS
B	Affiliation	University of Cyprus
	4th Evaluator information	
A	Name, Surname	Sabine SZUNERITS
B	Affiliation	University of Lille
	5th evaluator information	
A	Name, Surname	Elvira FORTUNATO
B	Affiliation	University of Lisbon

The preliminary /final report should contain:

- 1) 1 page – Conclusions and recommendations;
- 2) At maximum 2 pages – max. 1 page as comments for each team;
- 3) Max. 2 pages – justification of the mark awarded, for each of the 5 criteria, highlighting strengths and weaknesses, in accordance with the minutes/report of the visit;

Conclusions and Recommendations

Conclusions

- A clear strong vision concerning the future activities of the Institute by the General Director that clearly identifies the existing weak points that need to be overcome.
- Strong commitment of the institute in attracting PhD students and to promote internationalization of its members
- Strong commitment by the managerial board in hiring highly qualified personnel, mainly from Romania Diaspora.
- Strong commitment by the Institute towards Internationalization and National partnerships, with personnel highly motivated.
- Highly qualified research personnel able to manipulate the excellent set of equipments purchase, some of them unique in Europe, especially in the area of materials characterization and modelling.
- Young Scientists (<45 years) are leaders of the groups, by merit and not by age.
- Excellent number of contributions in book chapters given in this period (27).
- Good uniformity of the research personnel but two teams, “Surface and Interface, X-ray/Electron Spectroscopies and Diffraction” and OPNM) are exceptional in attracting external funding. Here we have also to mention the “Complex Heterostructures and Perovskite Oxides” group that is involved in two fp7 forefront projects.
- Very good strategy concerning the manipulation and sharing of existing characterization facilities among the groups and provisions for lending services/assistance.
- Very good webpage to disseminate and to show globally the Institute activities. It should be used to further promote partnerships and the foundation of start-up.
- Good level of transparency in decision making and allocation of funds
- Good balance between patents submitted and papers submitted to ISI Journals.
- Small fraction of total funding from private and international funds
- No clear policy concerning technology transfer, at National or International levels.
- No start-up or spin-off companies created but there is a strong commitment to establish them.
- Need for more technical personnel to support and maintain and to promote the existing processing infra-structures towards clear targets that should be the flag of the Institute.
- They have two certify laboratories (chemical analysis and testing infrared detectors)

Recommendations

- Restructuring of research teams: teams no. 1, 5, and 8 (part of it) must be merged, concerning the matters that they deal with. The matters related to inorganic-organic composites may need a special attention, within the future expected re-structure. Also groups 3 and 4 must be put together.
- More reinforcement of existing synergies.
- Better focus on research topics. More involvement of the institute in international projects. To increase the competitiveness in practical use of functional materials in devices and systems, they need to recruit expertise in microelectronics processes to improve the applied oriented research.
- Should publish (or submit) papers to high impact factor journals and present results in conferences afterwards (try now to move towards high quality).
- Should sustain and exploit further national and international technology transfer and to create a spin-off company in the near future.
- Should promote interaction with young researchers; open the facilities to support “launching of ideas”, in close cooperation with the regional authorities, to promote the creation of start-up companies by entrepreneurs.
- Multidisciplinarity must be potentiated.

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- Should reformulate the existing broad range of objectives and concentrate mainly in a reduced number of topics, going from materials design, development and processing to applications, based on the existing expertise. It is a waste of resources to have different groups looking for the same thing with the same eyes!
- The existing very good web page should also be used to promote technology transfer and the foundations of future start up, national and regional focus.
- Prior to any other investment, the existing ones should be exploited.

Comments for Laboratory L10: Multifunctional Materials and Structures.

This Lab includes two teams:

Team-1 Functional Nanostructures

It is composed by 4 senior Scientists, 2 Post-doc, 3 PhD students and 2 Technicians. They have ongoing 3 national projects and an International project funded Swiss NSF. The ongoing contracts correspond to a total around 0.6M€.

The leader of the group is Dr. Ionut Enclulescu. They have also a wide range of international cooperation. The aim of their activity is centred in characterizing and developing nanostructures and nanowires for device integration, electing as main material the ZnO (as it is done for more 5 teams). The main process technique elected is electrodeposition. They also have been trying activity related to biofunctionalization of materials and related to organic devices. They have several overlaps (not complementarities) with teams 5 and 8, but also strong complementarities to rent all, if merged. As it is we find a lack of critical mass concerning the different set of topics in which they are involved.

Team 2 Complex Heterostructures and Perovskite Oxides

It is composed of 12 senior researchers, 9 junior researchers, 1 post doc from UK, 2 visiting students 2 part time students and 9 technologists. The groups is involved in 5 International projects of reasonable dimension and targeting fields of great relevancy. Moreover they are involved also in 2 national projects. As far as funds from the projects are concerned they got about 2.6 M€ and the average number of publication per year is of 27.

The head of the team is Dr. Iona Pintile, an expertise well recognised internationally in the field of the team activity. The research activity performed involves Ferroelectric /multiferroic based heterostructures; Materials for Microwave applications; Piezoelectric Materials; Electrically active defects in materials and structures and defect engineering. The group has a nice critical mass, an excellent record of international cooperation via projects and very good programmed objectives. To exploit further the set of expected achievements they need urgent to hire and expert in microelectronic processes, to boost research towards devices and systems integration.

The lab has very good characterization and process facilities.

Excellent background of the personnel involved in the topics related to oxides. This should be used to boost all institute towards excellent in the field. Very good team with clear ideas and commitments.

Comments for Laboratory L20: Magnetism and Superconductivity.

This Lab includes two teams:

Team-3 Electronic Correlations and Magnetism

The team is composed of 9 senior PhD-researchers (out of which 3 are PhD advisers in the Physics Faculty of the University of Bucharest), 9 young researchers/assistant researchers (out of which 7 are PhD students), 1 highly specialized engineer and 4 technicians. In average, 2 PhD students defend their PhD thesis yearly. In the period under evaluation they won 1 FP6 project (Network of Excellence; 100k€), 5 projects of Euroatom type (150k€), several bilateral international cooperation projects, and 17 national projects (JARP and IDEAS; 1.4M€). The overall budget of the projects is around 1.65 M€. The level of publications per year is of 25. The average number of ISI articles per PhD-researcher per year is 2.8, which is satisfactory according to international standards. Moreover, they contribute for 2 book chapters, have 5 patents awarded/filed (one has won international recognition); 2 presentations in contributed volumes; 8 invited lectures; and 20 oral presentations in international conferences.

The team leader is Prof. Victor Kuncser with long and strong experience in the area of magnetism.

The research interests are aligned with the general research trend in the Institute, which are mostly fundamental research topics, and are focused on: (i) the investigation of electronic phenomena and related magnetic properties, especially in nm-size structures and (ii) the design of new performing structures with magnetic response.

The expertise of Team-3 concerns preparation/processing (using spark plasma and hot pressing; microwave and classical annealing; melt spinning; mechanical attrition and rf sputtering) and characterization (using dc/ac magnetometry; MOKE; Mossbauer spectroscopy; thermal properties; magnetotransport and magnetostriction; and gas absorption/desorption kinetics) of nanostructures (nanopowders, nanocomposites, thin films and multilayers). The main infrastructure is shared with Team-4 and has been acquired or upgraded during the last 3 years.

Team-3's research directions and topics involve: (i) size effects and interactions in nanoparticulate systems and nanocomposites; (ii) interfacial interactions and surface electronic/spin configurations in layered nanosystems; (iii) phase transitions and electron correlations in functional materials; and (iv) first principles atomistic modeling and simulation of phenomena in materials within the DFT framework. The future research directions of Team-3 fit with existing experience and will be focused on magneto-functional and multi-functional (i.e., heterogeneous structures based on interfacial coupling of two functional nanostructures one of which is magneto-functional) nanostructures.

Team-3 has research personnel with great expertise in the area of magnetism and excellent infrastructure. These advantages should be exploited to obtain a larger number of publications in higher impact factor (>5) journals and to attract more EU funded projects.

Comments for Team-4 Superconductivity

It is composed of 9 PhD-researchers (6 SR I, 2 SR III, 1 R), 1 young assistant researcher (1 MSc student), and 1 technician for sample preparation. One senior researcher is a PhD adviser in the Physics Faculty of the University of Bucharest. Team-4 for the period 2007-2011 has won 1 MC Excellence Grant (University of Birmingham, UK), 3 projects of Euroatom type, 2 bilateral international cooperation projects, and 7 national projects (PP, CEPR and IDEAS), with a total budget not clear specified.

The output of Team-4 for the period 2007-2011 is 23 ISI articles per year. The average number of ISI articles per PhD-researcher per year is 2.6, which is satisfactory according to international standards. Also the articles have appeared in journals related to superconductivity with satisfactory impact factor such as Phys. Rev. B, Physica C, Supercond. Sci. Technol., J. Appl. Phys., IEEE Trans. Appl. Supercond., etc. The impact factor rating of most of these journals has been reduced in recent years as less research is conducted in the field of superconductivity.

The team leader is Dr. Lucica Miu with long and strong experience in the field of superconductivity.

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The research interests of Team-4 are aligned with the general research trend in the Institute, are both fundamental and technological research topics, and are focused on: (i) Vortex dynamics in high- T_c superconductors; (ii) MgB_2 for practical applications; (iii) Composite superconductors; &(iv) Exotic superconductors (Fe-based pnictides and non-centro-symmetric superconductors).

The expertise of Team-4 concerns preparation (spark plasma and hot pressing; arc melting; PLD; rf sputtering; and chemical routes), characterization (*structural* - HRTEM, *morphological* - SEM, AFM) and investigation of physical properties (*magnetic* – ac/dc magnetometry, *thermodynamic* – specific heat, TGA/DSC/DTA and *transport* – resistivity, Hall, I-V measurements, thermal conductivity) of bulk, thin films and nanostructures. The techniques used are similar to the twin team of the laboratory. The main infrastructure is shared with Team-3 and has been acquired or upgraded during the last 3 years.

Team-4's research directions and topics involve: (i) YBCO thin and thick films with improved critical parameters for superconducting coatings; (ii) MgB_2 for practical applications; (iii) Low dimensionality superconductors; (iv) Exotic superconductors; (v) Vortex dynamics, pseudo-gap, pairing, the $1/8$ anomaly, and (vi) Selected advanced ceramics. In all of these topics the objective is to address long standing open questions of fundamental and technological interest.

The future research directions of Team-4 fit with existing experience and will be focused on the investigation of (i) pairing mechanism in superconducting pnictides, (ii) vortex dynamics in “striped” HTS, (iii) improving J_c in YBCO and MgB_2 thick coatings, (iv) quantum vortex creep in low-dimensional superconductors.

Team-4 has research personnel with great expertise in the field of superconductivity and excellent infrastructure. These advantages should be exploited to obtain a larger number of publications in higher impact factor (>5) journals, to attract more EU funded projects, to apply for patents and to be involved more actively in technology transfer.

There is no reason to have two teams in this lab, once they are acting within the same field of research and should benefit for joining efforts.

Comments for Laboratory L30: Physics of Condensed Matter at Nanoscale.

This Lab includes four teams:

Team-5 Si- and Ge-based nanomaterials and nanostructures

It is composed of 10 members (4 SR I, 1 PhD post doc, 2 Phd students 1 Master student and 2 Technicians). Average age 41.8 years.

Team-5 for the period 2007-2011 has won 11 national projects with total funds of around 1.74 M€.

The output of Team 5 for the period 2007-2011 is 9.8 ISI articles per year. The average number of ISI articles per PhD-researcher per year is around 2, which is internationally still acceptable, but needs improvement on the impact factor of the journals selected for publication. Moreover they contribute with 2 book chapters (springer) and have given 8 international invited talks.

The team leader is Dr. Magdalena Lidia Ciureawith long and strong experience in the physics of condensed matter.

The research interests of Team-5 are focused in the development of covalent nanostructured materials, silicon and germanium based, following a clear basic research approach. To this, they also add interests in Carbon nanotubes and research on defects in Si.

The expertise of Team-5 concerns preparation (rf and dc sputtering), characterization (*structural* - HRTEM, *morphological* - SEM, AFM) and investigation of physical properties (*optical* - Ellipsometry, *surface* - Auger).

The future research directions of Team-5 address the use of Ge nanostructure in photodetectors; use of CNE in electronic devices; defects on Si and Ge.

The topics selected are classical and no clear disruption can be foreseen in a medium range strategy. Moreover they are quite complementary of Team 1 and Team 8 and they should joint efforts to boost to Excellency the research performed (better focus and novel ideas should be brought out of the proposed merger).

Team-6 Surface and Interface Science, X-ray/ Electron Spectroscopies and Diffraction.

It is composed of 23 researchers (4 SR I, 7 SR III, 3 R, 3 research assistants and 6 Technicians).

Team-6 for the period 2007-2011 has been involved 3 main infrastructure projects from which the institute got around 0.6 M€ and another large one (ELI-project) not yet materialized the institute budget.

The output of Team-6 for the period 2007-2011 is 30.1 ISI articles per year (the largest of the institute. The average number of ISI articles per PhD-researcher per year is 2.75, which is good according to international standards.

Moreover, they also have been involved in submitting/grant of 2 patents.

The team leader has a strong experience in the field of surface and interface science. Moreover the group includes outstanding researchers in the field of materials structural characterization and data interpretation.

The research interests of Team-6 are aligned with the general research trend in the Institute, are both *applied* (development of new devices and implementation of new techniques) and *fundamental* (growth and in situ characterization of new materials; new theoretical developments of standard analysis methods) to which they add the component of lending *Services*, Nationally and Internationally.

They have good facilities for crystal growth and excellent characterization equipment translated by Photon Electron Spectroscopy (XPS); a multimethod surface analysis system (XPS, UPS, AES, STM); a surface science cluster (MBE, STM and SARPES; XAFS; LEEM-PEEM).

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Team-6's research directions and topics involve: (I) Short term bottom up Applied research targeting: High temperature effusion cells; Advanced technologies for biophotonic sensing devices; In-situ technologies for multilayer structures; Adaptation of multipurpose system (XPS, AES, XPD, STM) for the quantification of SERS, function of molecule-substrate distance; absorption geometry; surface nanostructuring; frequency; (II) Long term bottom up Applied research (services included): nanolithography engineering; set up of MOKE, photoemission magnetometry; set up of inverse photoemission experiments; set up of noncontact surface resistivity measurement. III Short term fundamental research towards surface science chemistry, physics and biology applications; biofunctionalization of 3d titanium implants; effect of interface on charge transport; chemical switching of surface ferroelectric topology; ferromagnetic ordering induced in doping graphenes; (IV) Long term fundamentals: Doping AlGa/GaAs heterostructures; metal-insulator transitions; dark field LEEM imaging of extra spots; functionalized nanoparticles.

The ambition of the group is too large! They should converge and define clear future topics where they aim to be outstanding! In spite of very good critical mass of the group.

Team-7 Theory: Theoretical Physics group.

It is composed of 8 members (2 SR I, 1 SR II, 3 SR III, 1 MSc). The team leader is Dr. V. Moloveanu.

Team-7 was recently established and it is mainly devoted to modeling and understanding of transport phenomena at nanoscale, both static and dynamic (mesoscopic interferometers with embedded QDs and all their possible special combinations; spin filters and splitters), backup by proper experimental data. They are equipped with required Hardware and software tools to perform their activity.

The group should back up the fundamental and applied research of the institute where it is very relevant in the future to use clear modeling tools to promote the production of materials by design and to implement to the extreme of their potential the set of devices/systems envisaged to be the target and flag of the entire Institute.

Comments for Laboratory L40: Optical Processes in Nanostructured Materials.

This Lab includes 1 team:

Team-8 Optical Processes in Nanostructured Materials

It is composed of 29 members (6 SR I, 2 SR II, 10 SR III, 4 researchers, 7 assistant researchers and 4 technicians). Moreover, the team has 4 PhD students and 4 MSc students.

Team-8 for the period 2007-2011 has won 45 national projects with total funds of around 5.1 M€.

The output of Team 8 for the period 2007-2011 is around 45 ISI articles per year. The average number of ISI articles per PhD-researcher per year is around 2, which is satisfactory according to international standards. They also contributed with 2 book chapters.

The team leader is Dr. M. Baibarac with long and strong experience in the field of applied physics of condensed matter.

The research interests of Team-8 are focused on the development of the synthesis procedures and optical characterization of inorganic micro and nano-particles; Development of the synthesis procedures and optical characterization of composite materials based on carbon nanotubes and polymers for applications in the energy storage as well as sensors for medicine; Development of the synthesis methods of chalcogenides and soft materials for application in sensors, information technology and optoelectronics field.

The expertise of Team-8 concerns materials preparation and characterization and are now focused in devices development and fabrication. They are equipped with a UV/VIS/NIR spectrometer; FTIR; FTRaman; Thermoluminescence; Raman; Densitometer; Solar simulator; Broadband dielectric spectroscopy system; glove boxes for samples preparation and processing; Langmuir; Potentiostat.

Some of the equipment, like the Langmuir should be placed inside the clean room or to be under a controlled atmosphere.

The future research directions of Team-8 involves: new strategies for synthesis of nanostructured materials; highlighting of new optical phenomena in nanostructured materials; development of applications in the field of energy conversion and storage.

The topics selected are interesting but they do overlap in a broad range with the ones of teams 1 and 5. Moreover they have also complementary expertise of the above mentioned teams that could boost the team to the frontiers of knowledge if synergies are properly exploited. Here focus should be centered in different functional materials such as inorganic-organic composites, but needs to be demonstrated with update ideas and concepts.

Comments for Laboratory L50: Laboratory of Atomic Structures and Defects in Advanced Materials

This Lab includes 1 team:

Team-9 Atomic Structures and Defects in Advanced Materials

It is composed of 20 members (7 SR I, 3 SR II, 2 SR III, 3 researchers, and MSc, 5 technicians). Moreover, the team has 4 PhD/MSc students.

Team-9 for the period 2007-2011 has won 29 national projects, 3 EURATOM projects, besides services, with total funds of around 3.4 M€.

The output of Team-9 for the period 2007-2011 was not clearly supplied. Considering the set of publications referred in the document that we have has access are around 20 ISI articles per year. The average number of ISI articles per PhD-researcher per year is below 1.2, which is not satisfactory according to international standards. This figure needs to be clearly improved.

The team leader is Dr. C. Ghica with a quite very good background in the field.

The research interests of Team-9 are focused on finding and understanding defects down to a nanoscale level, for which they have the backup of powerful characterization tools (TEM, SEM, Mossbauer Spectroscopy, Optical Spectroscopy). Moreover they also aim to induce and manipulate defects, aiming to tailor material electro-optical performances. The set of activity performed involves the evaluation and control on nanoparticles synthesis for application in sensors, optoelectronics, catalysis and photocatalysis; investigation down to atomic scale of structural defects, native or oxide induced, in the bulk or nanomaterials. Moreover they also have activity on growth and characterization of thin films by PLD, sol-gel, besides promoting surface processing/treatment via plasma and laser. The main driving activity of research is clearly focused on basic research.

Taking into account the nanoscale level of application they aim to exploit, it is quite relevant not to forget the vital role that surface has when dealing with device at a nanoscale level. Moreover the back up of proper modeling and the use of models like DFT are quite critical if really Excellency is pursued. Moreover, it is not clear what type of materials, different from other groups they process. It is recommended to concentrate where they have a non questionable add-value: defects evaluation and analysis, backing up the development of the entire Institute.

Team-9 is very well equipped with powerful and fully update characterization and surface tools: EPR, TEM, TEM/STEM, HRTEM, EDS, EELS, SEM-FIB; Mossbauer spectroscopy. For materials synthesis they have several small equipments, for chemical synthesis, as well.

The future research directions of Team-9 involves: fundamental studies in solid state physics (size effects, quantum structures, radiation and matter interactions); synthesis and characterization of multifunctional materials (energy generation and storage-clear overlap with team 8; smart materials-overlap with team 2; materials for spintronics and transparent electronics- overlap with team 2 and 1 and partially with team 4; gas sensors- overlap with team 2 and team 8; biocompatible material- again overlap). The type of strategy defined seems not have been discussed with the existing teams and there are more than 80% of overlap/repetition. This should be corrected and avoided. They should focus on clear novel concepts, but in a complementary way, in order to have a nice complementary chain of activities (even some healthy internal competition will be tried), to boost for success all institute.

This type of vision needs to be re-visited and re-scheduled for all team activities.

Justification of the mark awarded (4.6)

The quality of R&D activities and their results – Proposed mark 4.1

- 810 ISI publications with a score of 1.5 papers/PhD/year, which correspond to 1919 ISI citations in the period of evaluation. Good number of national and international patents
- Good number of national projects and satisfactory number of international projects
- No start-up or spin-off companies currently but there are intentions to have one soon.
- Nice defined set of basic research objectives that need to be complemented with actions involving applications and industry partnerships.
- Relatively good connection of activities with local community and excellent vision concerning international partnership, but needs to be boost to Excellency.
- Very good vision for institute promotion and data dissemination, but better exploitation of the first class infra structure is required.

Human resources Quality - Proposed mark 4.7

- The Institute exhibits a sustainable scientific philosophy well translated by previously having promoted the reduction of the number of existing groups, turning them more efficient and also promoting cross-fertilization!
- Nice uniformity among teams and labs, but synergies among and between teams needs to be pursued.
- There is a slight difficulty in attracting highly educated young PhD researchers with foreign experience mainly due to unstable financial situation in the Institute.
- A quite relevant point concerns the fact that more than 80% of researchers have had training outside Romania and they are attracting a considerable number of high level Romanian researchers.
- Team leaders are young and highly competent researchers.
- Good ratio between R&D personnel and administration staff but low number of technicians/engineers
- Good involvement of PhD students

Quality infrastructure and its rate of exploitation - Proposed mark 4.5

- State-of-the-art infrastructure in support of the current and future activities of the entire institute.
- Good strategic plan and exploitation vision of the existing and newly acquired infrastructures.
- Most researchers have expertise in newly developed techniques and acquired instrumentation, but there is still need to hire highly qualified personnel in some process and applied key areas, such as in microelectronic processes.

Management efficiency and quality of the research environment - Proposed mark 5.0

- Outstanding General Director.
- Highly motivated and determined research personnel
- Efficient support of auxiliary personnel to research personnel
- Well organized institute with administration procedures reduced to a minimum
- Good level of transparency in decision making and allocation of funds
- Good level of research personnel involvement in decision making, in defining the strategy and objectives for future development, and in acquiring new infrastructure
- Good effort in adoption of good practices in management of research
- The General Director is a strong, dynamic and committed researcher with international experience. He also presents an excellent strategy and exploitation plan for the next period. It is a top leader and he is the driving force to push to Excellency all institute

Quality and credibility of the institutional development plan – Proposed mark 4.7

- The development direction and strategy are excellent defined, with an excellent web page to disseminate the overall Institute research potential and so, to attract the best researchers, but needs to highlight also the aperture of the institute in promoting technology transfer and start-up, as this is a National objective.
- The appointed development directions are clear and well sustained, where it is foreseen a better exploitation of the existing synergies in the near future.
- The criteria for Excellency for teams to converge on specific and scientific topics are clearly addressed by the director and the scientific board and this should pursue towards a better use of the existing human and infrastructure resources within the Institute.
- The General Director is aware that the pillar of the processing materials for a concrete application in field of multi KET (multiple Key Enable Technologies) is somehow still lacking on outstanding expertises.
- Several efficient mechanisms are or will be put in place to stimulate new ideas, directions and subjects
- Strong commitment to enhance collaborations and partnerships, support knowledge transfer at national and international institutions and facilitate research policy development
- Good expertise for ongoing projects.
- They have critical mass in strategic areas of development, but still missing some qualified personnel to back up the field of application, and so to bridge possible connection to industry world. It is recommended to hire expertise for that, especially experts in microelectronics processes.

Overall technical considerations, observations, conclusions:

The Institute has very good expertises in the set of fields in which acts following a bottom up approach, with a reasonable balance between the set of ongoing activities, with an excellent leadership (general director) that promotes the merit and the required scientific convergence.

Nevertheless, to pursue Excellency some changes are suggested, involving the merging of teams active in areas with strong overlap such as teams no.1, 5 and a great part of team 8 and teams 3, 4 (which already integrate the same lab). The performed and proposed dissemination action is real within expected top level, as it is the case of the web page and the international approach to top level labs performed by the General Director. It should be also used to promote at National, Regional and even International levels, technology transfer and star-ups. Suggestions: please highlight main international patents: highlight innovative concepts that may be close to the market! Potentiate and turn visible international recognition of activity and certification by independent labs of main achievements! Define and disseminate the rules of a cabinet of data exploitation or similar.....

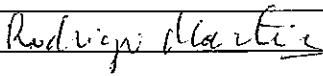
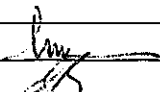

It is recommended to reinforce existing synergies in better focus research topics, aiming to potentiate the involvement of the Institute in more international projects, as well as to reinforce activity in applied oriented research.

To increase the competitiveness in practical use of functional materials in devices and systems, they need to recruit an expert in microelectronics processes. Do not invest in areas without first having the required expertise.

Authorities must be aware of the high costs related to the International patents and a proper cabinet should be opened aiming to deal with IPR and entrepreneurial matters: how to select and to support the patents to submitted Internationally; how to share royalties and share profits, rights of the inventors, how to licence Nationally and internationally. We also recommend that the Institute should promote interaction with young researchers, opening their facilities to support “launching of ideas”, in close cooperation with the regional authorities, to promote start-up by entrepreneurs, with the support of the Romania science authorities.

Moreover, the Romanian Authorities should propose a national tender programme to hire high ranking scientists (1000 of equivalent to researcher 2) by a 5 years period according to the holes existing in high scores Institutes, aiming to boost to the extreme of the frontiers of knowledge the installed first class infra-structures, allowing so to exploit to the maxima (scientific, technological and innovations towards the market) the set of investments already performed.

Proposed certification level:A+

Nr. crt.	Name, Surname	Signature
Evaluation TEAM		
1	Evaluator 1 - Rodrigo MARTINS	
2	Evaluator 2 - Antonio FETEIRA	
3	Evaluator 3 - Ioannis GIAPINTZAKIS	
4	Evaluator 4 - Sabine SZUNERITS	
5	Evaluator 5 - Elvira FORTUNATO	
Observers		
1	Coordinating Authority	
2	CCCDI Representative – Rare <input type="checkbox"/> MEDIANU	
3	ANCS Representative – Ruxandra POPESCU	

Date: 14 April, 2012

Overall technical considerations, observations, conclusions:

The Institute has very good expertises in the set of fields in which acts following a bottom up approach, with a reasonable balance between the set of ongoing activities, with an excellent leadership (general director) that promotes the merit and the required scientific convergence.

Nevertheless, to pursue Excellency some changes are suggested, involving the merging of teams active in areas with strong overlap such as teams no.1, 5 and a great part of team 8 and teams 3, 4 (which already integrate the same lab). The performed and proposed dissemination action is real within expected top level, as it is the case of the web page and the international approach to top level labs performed by the General Director. It should be also used to promote at National, Regional and even International levels, technology transfer and star-ups. Suggestions: please highlight main international patents: highlight innovative concepts that may be close to the market! Potentiate and turn visible international recognition of activity and certification by independent labs of main achievements! Define and disseminate the rules of a cabinet of data exploitation or similar.....

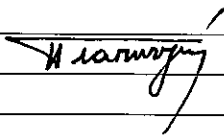
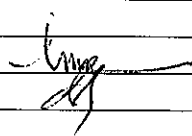
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Moreover, the Romanian Authorities should propose a national tender programme to hire high ranking scientists (1000 of equivalent to researcher 2) by a 5 years period according to the holes existing in high scores Institutes, aiming to boost to the extreme of the frontiers of knowledge the installed first class infra-structures, allowing so to exploit to the maxima (scientific, technological and innovations towards the market) the set of investments already performed.

Proposed certification level:A+

Nr. crt.	Name, Surname	Signature
Evaluation TEAM		
1	Evaluator 1 - Rodrigo MARTINS	
2	Evaluator 2 - Antonio FETEIRA	
3	Evaluator 3 - Ioannis GIAPINTZAKIS	
4	Evaluator 4 - Sabine SZUNERITS	
5	Evaluator 5 - Elvira FORTUNATO	
Observers		
1	Coordinating Authority	
2	CCCDI Representative – Rareș MEDIANU	
3	ANCS Representative – Ruxandra POPESCU	

Date: 14 April, 2012

Overall technical considerations, observations, conclusions:

The Institute has very good expertises in the set of fields in which acts following a bottom up approach, with a reasonable balance between the set of ongoing activities, with an excellent leadership (general director) that promotes the merit and the required scientific convergence.

Nevertheless, to pursue Excellency some changes are suggested, involving the merging of teams active in areas with strong overlap such as teams no.1, 5 and a great part of team 8 and teams 3, 4 (which already integrate the same lab). The performed and proposed dissemination action is real within expected top level, as it is the case of the web page and the international approach to top level labs performed by the General Director. It should be also used to promote at National, Regional and even International levels, technology transfer and star-ups. Suggestions: please highlight main international patents: highlight innovative concepts that may be close to the market! Potentiate and turn visible international recognition of activity and certification by independent labs of main achievements! Define and disseminate the rules of a cabinet of data exploitation or similar.....

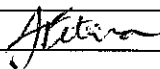


It is recommended to reinforce existing synergies in better focus research topics, aiming to potentiate the involvement of the Institute in more international projects, as well as to reinforce activity in applied oriented research.

To increase the competitiveness in practical use of functional materials in devices and systems, they need to recruit an expert in microelectronics processes. Do not invest in areas without first having the required expertise.

Authorities must be aware of the high costs related to the International patents and a proper cabinet should be opened aiming to deal with IPR and entrepreneurial matters: how to select and to support the patents to submitted Internationally; how to share royalties and share profits, rights of the inventors, how to licence Nationally and internationally. We also recommend that the Institute should promote interaction with young researchers, opening their facilities to support "launching of ideas", in close cooperation with the regional authorities, to promote start-up by entrepreneurs, with the support of the Romania science authorities.

Moreover, the Romanian Authorities should propose a national tender programme to hire high ranking scientists (1000 of equivalent to researcher 2) by a 5 years period according to the holes existing in high scores Institutes, aiming to boost to the extreme of the frontiers of knowledge the installed first class infra-structures, allowing so to exploit to the maxima (scientific, technological and innovations towards the market) the set of investments already performed.

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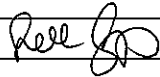
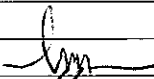

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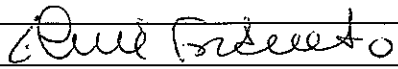
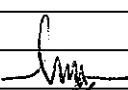

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