

SINTESI VALUTAZIONE ISTITUTI 2014
Dipartimento Scienze Fisiche e Tecnologie della Materia (DSFTM)

Istituto: Sistemi Complessi - (ISC)

Struttura	Voto Panel 2014	Giudizio	Rank 2014	Rank 2009
Sistemi Complessi	90	excellent	1 ↑	10
Istituto Nazionale di Ottica	85	excellent	2 ↑	6
Microelettronica e Microsistemi	80	excellent	3 ↓	1
Fotonica e Nanotecnologie	78	very good	4 ↓	2
Nanoscienze	78	very good	4 ↓	3
Biofisica	65	good but improvements required	6 ↑	7
Superconduttori materiali innovativi e dispositivi	65	good but improvements required	6 ↓	3
Officina dei Materiali	60	good but improvements required	8 ↓	3
Struttura della Materia	52	good but improvements required	9 ↓	8
Cibernetica "Edoardo Caianiello"	45	low	10 ↓	9
Metodologie Inorganiche e dei Plasmi	0	0		
MEDIA PANEL	69,80			

Voto Panel	90
Giudizio	excellent

Panel Recommendations

The activities of CNR-ISC researchers are overall very good on the international scale, this institute should be considered as a point of strength for the whole CNR. Yet the institute should do more to acquire a leadership position world wide. Future hires in fields that bridge the various ones present in the institute and stimulate inter-institute synergies are highly recommended. To be clear we would like to see CNR investing in this institute. Future hires would ideally be foreigners and necessarily should not be people coming from the same places where most of the Institute members come from.

* Per NANO, SPIN e IOM il riferimento è IFNM

Istituto: Istituto Nazionale di Ottica - (INO)

Voto Panel	85
Giudizio	excellent

Panel Recommendations

1. INO needs to further identify what its strengths are and then build on these, while refocussing some of its other activities. For example, "Cold Matter & Quantum Optics" appears as a research strength, while "Nano&Biophotonics" appears less strong, especially as Diederick Wiersma has now moved to the university sector. Would it be better to focus on fewer activities (e.g. to reduce its research areas from currently 6 to 4-5), but increase the impact in these more focussed areas ? 2. The international brand visibility needs to be stronger. For example, before conducting this report, I had not heard about INO, while I had heard about LENS and ICFO in Spain. INO has the potential to aspire to a similar reputation as ICFO. One possibility for achieving this is to recruit more aggressively abroad, especially for PhD students, another is to run more international events. 3. I commend INO for pursuing commercial opportunities and suggest that this area should be further strengthened. For example, "Sensors & Imaging" seems to have good potential for further commercial exploitation. Regarding the report format, we would prefer to see the h-factor graph to include all researchers, and to see invited talks being mentioned as a metric. Overall, I am happy to use the word "excellent" in the final assessment, although the performance across the breadth of activity could be more consistent.

Istituto: Microelettronica e Microsistemi - (IMM)

Voto Panel	80
Giudizio	excellent

Panel Recommendations

The general assessment of IMM as an entity is 'excellent' (80/100) with opportunities to take the performance higher. The sections appear to operate rather autonomously with limited co-ordination and the initiative to establish larger research groups on the same topic over the section borders is highly encouraged (and even mandatory if IMM wants to establish itself as a leading institute worldwide) This will promote both the scientific quality/output and efficient usage of the infrastructure. The effort to broaden the industrial partnerships, while still maintaining and further developing the very successful and dominant one with STMicronics, should be pursued, implying new research opportunities and risk mitigation for the institute in terms of funding and long-term activity planning. A thorough analysis of the excellence of individual sections and staff members needs to be performed in order to globally raise the output and quality level of the research. A long-term plan for sustainable operation of the advanced (expensive) infrastructures and replacement of obsolete heavy equipment (depreciation) should be established together with the CNR central management. The latter should fit into a global strategic plan to reconcile the diversity of the institutes and the operational efficiency of the infrastructure. Creating a more internationally based population will be essential to create a more relevant IMM worldwide.

Istituto: Fotonica e Nanotecnologie - (IFN)

Voto Panel	78
Giudizio	very good

Panel Recommendations

The general assessment of IFN as an entity is 'very good' but large disparity exists within the institute; some research groups are at world-class whilst others are struggling. The future research directions of the latter ones should be evaluated in detail to accomplish a more integrated and 'homogenous' performance of IFN, eventually reaching 'world-class' as an entity. Today, the link between the main and the small IFN units is not obvious. The opportunity of forming shared infrastructures with local partners and establishing open-access facilities is highly encouraged in order to accomplish sustainable state-of-the-art laboratories requiring regular investments in heavy (expensive) equipment.

Istituto: Nanoscienze - (NANO)

Voto Panel	78
Giudizio	very good

Panel Recommendations

-Attach the part of activities related to biology to a CNR institute with a focus in biological or biophysical research and focus all efforts of the institute on nano-electronics related activities. -Stimulate interactions between individual researchers who have complementary expertise. -Work on reducing inbreeding

Istituto: Biofisica - (IBF)

Voto Panel	65
Giudizio	good but improvements required

Panel Recommendations

Refocusing on specific topics of the Institute is essential for its future success. Based on the few publications really authored by CNR employed (and excluding review papers) in the list given to us, it emerges that the activity in membranes and pore-forming proteins headed by Dr. M dalla Serra and the neurobiology activity (embedded in part in the Human Brain project) may be among the most promising activities of the Institute. Integration with the biophysics activity across CNR institutes would be greatly beneficial. Increase of the scientists relative to the administrative personnel is key for the future prospect of the institute.

Istituto: Superconduttori materiali innovativi e dispositivi - (SPIN)

Voto Panel	65
Giudizio	good but improvements required

Panel Recommendations

Serious action should be taken to improve the international impact of the research done at the institute. The panel strongly suggests to concentrate the resources available around the most performing individuals, asking them to also develop a long term scientific strategy for the institute. Identify strategies to stimulate and reward excellence among SPIN researchers who perform well at international level. The lack of uniformity in quality between different locations should also be emphasized. Could one envisage a reduction in the number of locations by concentration in the largest location?

Istituto: Officina dei Materiali - (IOM)

Voto Panel	60
Giudizio	good but improvements required

Panel Recommendations

1. Concentration of efforts is recommended. Maybe the Institute should also renounce to the broad title "Officina dei Materiali" and acquire a new - more specific but stronger - profile. This implies to reconsider critically the ongoing projects, to select those more relevant to the progress of materials science, and also assess the relevance of research vs. services with reference to the CNR strategy. 2. It is also crucial to coordinate the research activities of IOM with other institutes, like ISM, NANO and, especially, IMM that successfully works towards important applications of advanced materials. For example, the mentioned themes - semiconductor materials via MBE, nanowires, graphene, material characterization - are rather common topics as well the techniques employed. Realignment appears to be urgently required so as to create a much stronger synergy between these Institutes. 3. In spite of the strong collaborations that in no case should be discontinued, clarification must be made between the contributions of CNR employees and those of affiliated institutions to each project. This would allow avoiding the mixing of research priorities (CNR vs. universities) and also confusion in the evaluation of CNR researchers.

Istituto: Struttura della Materia - (ISM)

Voto Panel	52
Giudizio	good but improvements required

Panel Recommendations

1. Serious action should be taken to improve the international impact of the research done at the institute. The panel strongly suggests concentration of available resources around the most performing individuals, asking them to also develop a long-term scientific strategy for the institute. 2. Concerning the activity of development and operation of instruments at Elettra, the presence of three different CNR Institutes (ISM, IOM, and the Crystallography institute) engaged in this activity, presumably for historical reasons, appears inefficient. One single institute, located in Trieste, with a sufficient scientific and technical staff focused on the Elettra support activities, would make much sense; this could also motivate a second thought on the optimal configuration to integrate the Rome and Potenza sites. 3. The institute management should identify strategies to stimulate and reward excellence among researchers who perform well at international level. Attention to securing resources from EU and other sources should be emphasized, given the modest support that CNR can provide.

Istituto: Cibernetica "Edoardo Caianiello" - (ISASI (ex-ICIB))

Voto Panel	45
Giudizio	low

Panel Recommendations

The activities of this institute should be strongly refocused, trying to find a goal that is commensurate with the personnel, additionally there will need to be a true effort in increasing the quality of the scientific output. This institute strength when compared to many others is that all employees are in the same location. It is critically needed now to create positive synergies among the good researchers that are present on site. The management has to clearly assess the obvious shortcomings and in this it has to be supported by the management of the CNR.

Istituto: Metodologie Inorganiche e dei Plasmi - (NANOTEC (ex-IMIP))

Voto Panel	-
Giudizio	

Panel Recommendations