

REPORT of the INTERNATIONAL ADVISORY BOARD (IAB)

Research Activities of 2014-2016

*Jerzy Haber Institute of Catalysis and Surface Chemistry,
Polish Academy of Sciences*

Introduction

The Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences (hereinafter 'Institute') addresses a multidisciplinary area at the interface between chemistry, physics, biology, engineering and material sciences, which is of critical importance for the development of a sustainable society, thus making a key contribution to:

- i) Catalytic materials and processes for sustainable development
- ii) Physics and chemistry of surfaces and nanostructures - experiment and theory
- iii) Nanostructures of soft matter
- iv) Physics and chemistry in cultural heritage protection

Addressing these important and challenging areas for the future of society it is necessary to have a critical mass of well-integrated competences, which can combine the fundamental knowledge to an applied vision able to catalyze the transfer to companies and innovation. For this reason, it is necessary to maintain a good balance between fundamental investigations and development. We appreciate the effort of the Institute to maintain this balance as well as the effort made in applying the fundamental knowledge developed in the Institute to contiguous areas, from biology and soft matter to cultural heritage, where there is a common platform of fundamental knowledge in both dry and wet surface and interface science, material and colloid science, and catalysis.

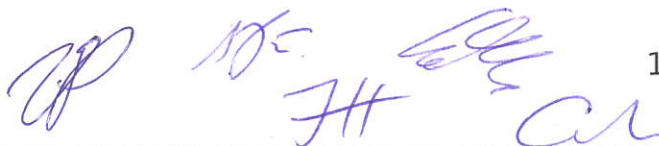
Impact of IAB previous report recommendations

We recognize the successful reorganization of the internal scientific structure of the Institute in response to the recommendations of the previous report of IAB, in particular regarding:

- A long-term strategy, based on the vision of frontiers of research in the area addressed by the Institute, and the possibility to exploit the fundamental knowledge to promote innovation;
- Developing an approach to raise funds and to publish high-quality work;
- An effort in raising the quality of some areas;
- An intensified effort to secure ERC, EU and other international funds and research contracts with companies;
- A policy to encourage international mobility for young and senior staff.

We recognize the effort made in the last three years to sustain the number and quality of publications in high-impact journals.

We approve the effort in setting up an internal evaluation of the performances of the different groups, and use this strategy for stimulating in restructuring and consolidation of the Institute.



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We positively consider the effort of the Institute for expanding scientific capabilities and achieving the status of leading national research centre KNOW in physical sciences.

Research, education and promotion of science

The Institute has further strengthened in the last three years its leading position in research, educations and promotion of science. In particular:

- the Institute is ranked among the top ten Institutes of PAS based on the scientific productivity and quality of young researchers
- sustained number of high impact papers;
- intensified collaboration with several research centres and organization of joint laboratories;
- participation in several consortia, research clusters and international networks including coordination of COST Action CM1101;
- excellent participation in several educational activities, from doctoral programmes to postgraduate schools and collaboration with high schools;
- large number of excellent and successful PhD students;
- remarkable outreach activities.

Transfer of research to application

IAB appreciates the effort made in transferring the results of fundamental research to patents. A further attention to innovation efforts by the research staff of the Institute is encouraged.

Funding aspects

We noticed the decline of the funds from the Polish Ministry of Science and Higher Education. This has been largely compensated by NSC and NCRD funds. The largest part of these funds is for fundamental research, which is consistent with the purpose of the Institute. IAB feels that to expand further the capacities of the Institute it is necessary to secure funds from EU and international programmes and research projects supported by companies. IAB appreciates the large effort made in applying for EU and ERC funds. Although the success was limited, we very much encourage continuing in this direction, including more intense mentoring of young researchers to improve success rate.

Scientific productivity

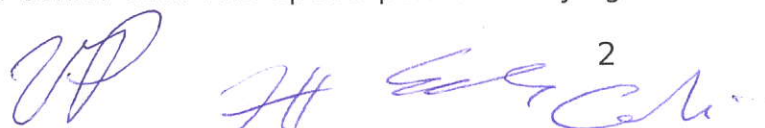
IAB is satisfied with the consolidated scientific productivity, both in respect to quality and quantity. Productivity is significantly above the criteria established by the Ministry of Science and Higher Education.

Personnel policy

Reorganization has increased the opportunities offered to young researchers for leadership and promotion. IAB appreciates the established internal evaluation of the research groups' performances and of the personnel, which has resulted in an improved structure of the Institute.

Efforts should be continued to attract foreign PhD students and post-docs. This should include the participation in international activities (Marie Skłodowska - Curie, Erasmus Mundus, etc.) to overcome limitations in funds available.

IAB also encourages continuing significant number of young researchers to be trained outside Poland. IAB appreciates that several senior staff has spend periods carrying

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out research in foreign Institutes. The Institute should actively promote this policy to maintain scientific health and motivation of students and staff.

Opportunities

The increased participation in consortia, such as SOLARIS (the Polish National Synchrotron), the Life Science and Energy Clusters, the Marian Smoluchowski Krakow Research Consortium "Matter-Energy-Future", E-RIHS PL "Polish Distributed Research Infrastructure for Heritage Science", etc., extend the opportunities for new topics and collaborations in the area of surface, life and material science, and catalysis. The activities in bio-catalysis are promising.

Recommendations

Research and innovation strategy

A long-term strategy, based on the vision of frontiers of research in the area addressed by the Institute, and the possibility to exploit the fundamental knowledge to promote innovation, should be developed and implemented. The strategy should be defined by the Director with the Group Leaders, based on bottom-up approaches with suitable strategies to create the critical mass to address challenging objectives requiring a joint effort.

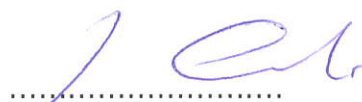
Scientific quality and funds

IAB appreciates the effort made in consolidating research output. The Institute is now in the position to implement new strategies to strengthen international visibility and attract more research funds.


Krakow, 27 February 2017

The International Advisory Board

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