

## Registration form for Polish research institution

1. Scientific institution data

INSTITUTE OF MATHEMATICS OF THE POLISH ACADEMY OF SCIENCES  
ul. Śniadeckich 8  
00-656 Warsaw  
Poland

2. Type of scientific institution:

scientific unit of the Polish Academy of Sciences

3. Head of the institution: Prof. Łukasz Stettner

4. Contact information of designated person(s) for applicants and NCN: first and last name, position, e-mail address, phone number, correspondence address):

Piotr Nowak, Deputy-Director of the Institute of Mathematics of the Polish Academy of Sciences, [pnowak@impan.pl](mailto:pnowak@impan.pl), +48 724264646, Śniadeckich 8, 00-656 Warszawa, Poland

5. Science discipline in which strong international position of the institution ensures establishing a Dioscuri Centre (select one out of 25 listed disciplines):

Natural Sciences and Technology disciplines:

### **Mathematics**

6. Description of important research achievements from the selected discipline from the last 5 years including a list of the most important publications, patents, other

To illustrate the quality of the scientific research conducted at IMPAN, we mention the following publications of the employees of the institute which appeared during last five years: the three monographs:

1. U. Franz, A. Skalski, Noncommutative Mathematics for Quantum Systems, Cambridge University Press, 2015.
2. C.Eyral, Topics in Equisingularity Theory, IMPAN Lecture Notes, Vol. 3, IMPAN, Warszawa, 2016.
3. G.Aubrun, A.Skalski and R.Speicher, Quantum Symmetries, Springer Lecture Notes in Mathematics 2189, 2017.

and the following research articles:

1. A. Kanigowski, B. Fayyad, Multiple mixing for a class of conservative surface flows. *Inventiones Math.* 203, 555-614 (2016).
2. G. Levin, F. Przytycki, W. Shen, The Lyapunov exponent of holomorphic maps, *Inventiones Math.*, 205, 363-382 (2016).

3. M. Sabok, Completeness of the isomorphism problem for the separable  $C^*$ -algebras, *Inventiones Math.* 204, 833–868 (2016).
4. P. Achinger, Wild ramifications and  $K(\pi,1)$  spaces, *Inventiones Math.*, 210, 453–499 (2016).
5. P. Nowak, Poincaré inequalities and rigidity for actions on Banach spaces, *J. Eur. Math. Soc.* 17, 689-709 (2015).
6. C. Batty, R. Chill, Y. Tomilov, Fine scales of decay of operators, *J. Eur. Math. Soc.* 18, 853-929 (2016).
7. J. Buczyński, T. Januszkiewicz, J. Jelisiejew, M. Michałek, Constructions of  $k$ -regular maps using finite local schemes, *J. Eur. Math. Soc.* online first 2016.
8. K. Palka, M. Koras, The Coolidge-Nagata conjecture, *Duke Math. J.* 166, 3085-3145 (2017).
9. Y. Gutman, E. Lindenstrauss, M. Tsukamoto, Mean dimension of  $Z^k$  actions, *Geom. Funct. Anal.* 26, 778-817 (2016).
10. M. Daws, P. Fima, A. Skalski, S. White, The Haagerup property for locally compact quantum groups, *J. Reine Angewandte Math. (Crelle's J.)*, 711, 181-229 (2016).
11. T. Komorowski, S. Olla, Diffusive propagation of energy in non-acoustic chain, *Archive Rat. Mech. Anal.* 223, 95-139 (2017).

Our employees obtained during last years several important prizes. For example M. Sabok received Gödel Prize, and W. Kucharz and F. Przytycki were invited speakers at ICM 2018.

Quality of IMPAN's research achievements has been also recognized via the award of several international research grants. In particular IMPAN received many EU-funded grants, such as a COFUND project (IMPACT dedicated for post-docs), a RISE project 'New geometry of quantum groups' (in noncommutative geometry), two IRSES projects: 'Towards regularity' and 'Asymptotics of operator semigroups' (in PDEs and operators of semigroups). Moreover, Piotr W. Nowak and Piotr Achinger received ERC starting grants based at IMPAN. IMPAN has also been a recipient of the Simons Foundation grant to organize a series of thematic semesters.

IMPAN was one of the nodes of the net of organizations participating in VIRGO programme which led to the satisfactory confirmation of the existence of gravitational waves. Prof. Andrzej Królak from IMPAN was the head of the Polish node of the net, VIRGO-POLGRAW.

Our former post-docs and PhD students regularly receive Marie Curie Fellowships, and several Marie Curie post-docs were granted for researchers coming to IMPAN.

7. List of no more than 3 important research projects from the selected discipline awarded in national and international calls to the institution in the last 5 years (title, name of PI, source of funding, amount of funding):

**1. RIGIDITY OF GROUPS AND HIGHER INDEX THEORY**

ERC Starting Fellowship

name of PI: Piotr Nowak

source of funding: European Research Council

amount of funding: 880 625 EUR

**2. DYNAMICAL ASYMPTOTIC COMBINATORICS**

MAESTRO 9

name of PI: Piotr Śniady

source of funding: National Science Centre

amount of funding: 2 608 620 PLN

### 3. **QUANTUM DYNAMICS**

Horizon2020 RISE

name of PI: Piotr M. Hajac

source of funding: EU contribution

amount of funding: 288 000 EUR

### 8. Description of the available laboratory and office space for the Dioscuri Centre:

IMPAN will provide up to 3 spacious offices in its headquarters building in Warsaw, which can easily house 5 to 7 mathematicians. If there is need, additional office space in Wrocław and Krakow branch institutes can be also provided.

Additional possibility is a use of Będlewo Conference Center facilities. This may require some negotiations and may involve certain charges, but in any case a preferential treatment would be given to Dioscuri Center activities.

### 9. List of the available research equipment for the Dioscuri Centre:

IMPAN provides standard access to research tools: excellent library and internet media via stationary computers.

It is a part of the Polish Academy of Sciences network, which allows to accommodate easily for special computing needs.

### 10. List of the additional benefits (other than listed in call text) that the Institution declares to provide for the Dioscuri Centre

- The Institute pledges additional 10 000 Euro a year to support employment costs of the Dioscuri Center.
- The Institute in past few years has been hiring 20 to 30 academics every year. Priority of some of these hires, subject to the standard Institute quality control procedures, can be directed towards strengthening the personnel of the Dioscuri Center.
- IM PAN has an extensive, and very good by Polish standards, personal benefits program.

### 11. Other information about the internationalisation of the research institution, international researchers employed at the institution, the availability of English language seminars etc.

IMPAN is one of the most internationally visible scientific institutions in Poland. More than 10% of our research staff is formed by foreign scientists, employed on short-term, long-term or permanent positions. Practically all the seminars in the institute are run in English, similarly all the administrative and research-related messages are sent to the employees both in English and in Polish. IMPAN is also regularly hosting international visitors, both as conference participants and within the research collaborations with the local mathematicians. Our conference arm, International Banach Center, is the most recognized mathematical center of its type in Central and Eastern Europe; it is every year visited by more than a thousand foreign scientists. The institute hosts also several grants awarded by the European Research Council, as well as a grant from the Simons Foundation: "Simons Semesters in Banach Center".

Almost all administrative employees of IMPAN possess a good command of English and every effort is made so that foreign scientists working in the institute are offered assistance in all practical matters regarding their stay in Poland, from helping in finding suitable accommodation or arranging healthcare and residence documents to providing free Polish language courses.