

The main organiser of the 12th ISAAC congress and the ISAAC president want to recall some activities of the ISAAC community from 2017 until its 12th biennial International Congress in Aveiro, Portugal, in 2019.

Just after the 11th ISAAC congress in Växjö in Sweden a reorganisation of ISAAC took place in autumn 2017 where an official registration of the society in Sweden with an independent bank account in Sweden took place.

One of the main goals of the work of the ISAAC officers in this election period consisted in a more active member recruitment. As a result more than 60 new members joined our organisation.

Inside of ISAAC the activities of special interest groups formed the core of activities of our society. We were very happy that a new special interest group “Operator Theory and Harmonic Analysis (OTHA)”

was founded. It is chaired by Alexey Karapetyants from University of Rostov-on-Don, Russia.

One of the goals of ISAAC is the support of conferences, workshops, schools and other meetings related to our society.

During the election period 2017-2019 the following scientific events were organized by members of ISAAC and supported by ISAAC:

- 3rd International Conference on Mathematical Computation (ICMC 2017), January 17-21, 2017, Haldia Institute of Technology, Haldia, India,
Website: <http://hithaldia.co.in/icmc2017/>
- Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis VII, April 23-28, 2017, Rostov-on-Don, Russia,
Website: <http://otha.sfedu.ru/conf2017/>
- Follow-up Approximation Theory and Function Spaces, June 26-30, 2017, Centre de Recerca Matemàtica (CRM), Barcelona, Spain,
Website: <http://www.crm.cat/en/Activities/Curs2016-2017/Pages/Follow-up-Approximation-Theory-and-Function-Spaces.aspx>
- Conference “PDE in Bari” held in the occasion of the 60th birthday of Enrico Jannelli, at University of Bari, on 1-2 February, 2018,

- Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis-VIII (OTHA 2018), April 22 to 27, Rostov-on-Don, Russia (Website: <http://otha.sfedu.ru/>),
- International Conference “Perspectives in Modern Analysis” at HIT - Holon Institute of Technology, Israel, May 28-31, 2018,
- Conference “Micro and pseudo ..., but Great!” Micro-Local and Time-Frequency Analysis at University of Turin, July 2-6, 2018, Website: <http://www.mltf18.unito.it>, this was on occasion of the 70th birthday of our former ISAAC president Luigi Rodino,
- ETOPIIM 11 at Pedagogical University of Krakow, Poland, 16-20.07.2018, Website: <http://etopim11.up.krakow.pl/>
- Symposium in Harmonic Analysis and Geometric Measure Theory, USP, August 20-22, 2018, Ribeirao Preto, Brazil,
- International Conference on Generalized Functions, GF2018, August 27-31, 2018, at University of Novi Sad, Serbia, dedicated to our long time ISAAC board member Michael Oberguggenberger’s 65th birthday, Website: <https://sites.dmi.uns.ac.rs/icgf2018/default.html>
- 9th workshop “Analytical Methods of Analysis and Differential Equations” (AMADE- 2018), September 17-21, at the Belarusian State University, Minsk, Belarus, dedicated to 70th anniversary of former ISAAC board member A.A.Kilbas (1948-2010).

Moreover, mini-courses for young researchers in Mathematical Analysis were held at Universities of Aveiro (Portugal) and Padova (Italy).

During the same time in the collection of ISAAC books in connection with Springer appeared

- Rodino, L.G., Toft, J., “Mathematical Analysis and Applications - Plenary Lectures”, ISAAC 2017, Växjö, ISBN 978-3-030-00873-4, <https://www.springer.com/gb/book/9783030008734>,
- Lindahl, K., Lindström, T., Rodino, L.G., Toft, J., Wahlberg, P. (Eds.), “Analysis, Probability, Applications, and Computation”, ISAAC 2017, Växjö, ISBN 978-3-030-04458-9, <https://www.springer.com/gp/book/9783030044589>,
- D’Abbicco, M., Ebert, M.R., Georgiev, V., Ozawa, T. (Eds.), “New Tools for Nonlinear PDEs and Application”, ISBN 978-3-030-10936-3, <https://www.springer.com/gp/book/9783030109363>.

We want to thank all ISAAC members for their activities and permanent support of the ISAAC board within the election period 2017 to 2019. Moreover, we thank the board members for supporting the activities of the officers.

At the end of the election period, the 12th ISAAC congress took place at the University of Aveiro, Portugal, from July 29 to August 3, 2019. Although the International Society for Analysis, its Applications and Computation (ISAAC) supported between 2017 and 2019 several conferences, workshops, and other events of scientific nature, the ISAAC congress is the congress *per*

excellence of the society. It represents a successful series of meetings initiated in Delaware, USA (1997), and has been held regularly every two years since, while rotating among different countries in Europe, America and Asia.

With a long tradition in joining researchers from different areas of Analysis and its applications, the 12th edition counted with 543 registered participants from 64 different countries, which attended 433 talks spanned by 22 sessions. As a novelty, and as to encourage collaboration between different special interest groups, additional joint sessions were organised around topics of common interest. Furthermore, a 23rd session was added for those participants whose topics were not reflected by the other sessions. Last, but not least, there was also 9 plenary talks given by leading experts in their respective fields:

- Afonso Bandeira - Courant Institute, NYU, USA;
- Alexander Grigoryan - Universität Bielefeld, Bielefeld, Germany;
- Karlheinz Groechenig - Universität Wien, Wien, Austria;
- Håkan Hedenmalm - The Royal Institute of Technology, Sweden;
- André Neves - University of Chicago, USA;
- Roman Novikov - Centre de Mathématiques Appliquées, École Polytechnique, France;
- Tohru Ozawa - Waseda University, Tokyo, Japan;
- Samuli Siltanen - University of Helsinki, Finland;
- Durvudkhan Suragan - Nazarbayev University, Kazakhstan,

which gave a broad overview on recent developments in their respective areas. This greatly contributed to the high scientific level of the congress, combined with the warm and relaxed atmosphere which prevailed during those five days. It is noteworthy to notice that many young mathematicians used the opportunity to join ISAAC during this time.

As it is tradition, an award was presented to young scientists for their particular merits in analysis, its applications and computation. For this edition there was a particularly strong group of outstanding candidates. In consequence, two ISAAC Award for Young Scientists were presented to:

Afonso Bandeira (Courant Institute, NYU, USA). Although young, his contributions range from classic analysis to applications in inverse problems, random matrices, optimisation, statistical physics, etc. Among his major contributions are applications of methods from Analysis to the theory of neural networks and deep learning. He has publications among top journals in both applied and pure mathematics, statistics, information theory and data science (e.g. Communications on Pure and Applied Mathematics, Applied and Computational Harmonic Analysis, and Annals of Probability). He was awarded a Sloan Fellowship in 2018 and is currently Full Professor at Department of Mathematics at ETH Zurich.

Fábio Pusateri (University of Toronto, Ontario, Canada), for his contributions to the study of dispersive and wave equations, fluid dynamics, and harmonic analysis. He made major contributions to the study of the water

wave problems. In particular, he proved the first global smooth, nontrivial solutions of gravity water waves systems in 2D, and the existence of global solutions to initial value problems for water waves in 3D and the long-time regularity for the gravity-capillary water-wave model in 3D. He published in first class journals like *Inventiones Mathematicae*, *Acta Mathematica*, *Memoirs of American Mathematical Society*, and *Annales de l' Institute Henri Poincaré*.

During the congress a meeting of the Board of ISAAC took place. During this meeting the board took the following principal decisions

- The election of the officers reconfirmed Michael Reissig (Freiberg University of Mining and Technology, Germany) as ISAAC President for the next two-years-term, with Irene Sabadini (Politecnico di Milano, Italy) as Secretary and Treasurer. Uwe Kähler (University of Aveiro, Portugal) was elected Vice-president. He succeeded Professor Joachim Toft (Linnæus University, Sweden) who finished his 4 years period.
- During this meeting, the venue for the next two ISAAC congresses were decided. They will be at Ghent, Belgium (2021) and São Paulo - Ribeirão Preto, Brazil (2023).

The plenary lectures given at the Congress appeared in an independent volume: P. Cerejeiras, M. Reissig (Eds.) *Mathematical Analysis and Applications - Plenary Lectures, ISAAC 2019, Aveiro, Portugal*, Springer Proceedings in Mathematics & Statistics, Springer, 2022.

Additionally, the traditional volume containing selected contributions of talks delivered at the Congress also appeared. As in previous editions, some of the sessions or special interest groups decided to publish independently their own volumes of proceedings and, therefore, did not contribute to the volume which could only appear thanks to the organisers of the sessions of the Congress. As usual it was their efforts - being at inviting participants, arranging their sessions, providing chairmen - which created the relaxed, friendly, and scientific atmosphere prevailing during the Congress as well as collecting and selecting the contributions.

Aveiro, Portugal, Freiberg, Germany, July 2021

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