

## Dear ISAAC members,

I wish you a nice summer 2019. The first part of 2019 has been positive for ISAAC. We received several new members (see the list below). All of you are very welcome to ISAAC. There have been several meetings on high level with fruitful exchanges with ISAAC. Several of these meetings were organized by ISAAC members.

I and several other scientists are looking forward to meet each other at the next ISAAC congress (12<sup>th</sup> ISAAC congress), which will take place in Aveiro, Portugal from 29 July till 2 August this year. The web site of the congress is:

<http://isaac2019.web.ua.pt/Webpage/Welcome.html>

I am convinced that it will be a very successful meeting.

At the congress, I have been the vice-president of ISAAC during 4 years, and it is then time for a new vice-president. It has been very nice and interesting to be the vice-president, especially during these 4 years. The ISAAC members are today many more compared to 4 years ago, or even compared to 2 years ago. We shall be proud as ISAAC members to be a part of this positive process. It is also worth to mention that several of these new members are “young”, and that ISAAC now hosts more fields within analysis and its applications.

I would also like to thank all members, in particular the ISAAC board, and then especially the ISAAC officers, president Michael Reissig and secretary and treasurer Irene Sabadini for very fruitful collaborations and discussions. I am also grateful to former president Luigi Rodino and Heinrich Begehr for nice collaborations during my first two years as vice-president.

After the latest congress, the ISAAC board took the decision of reregister ISAAC, and performed some other changes which required such registration. The plans were realized during Autumn 2017. I believe that this reregistration of ISAAC is an important part of the recent positive development of ISAAC. It is now time look forward to improve ISAAC even more. For example, since we are more members and hosting more fields, there might be room for new Special Interest Groups. Can the ISAAC News be improved?

It will be very nice to meet you in Aveiro in July.

Joachim Toft (vice-president of ISAAC)

## The News deal with

- New research groups in ISAAC
- Meetings associated to ISAAC
- Books related to ISAAC
- New members (supplementary files)





**MATERIALICA+**  
Research Group  
Computational Design  
& Structural Analysis



## MATERIALICA+ RESEARCH GROUP

### a new research group in ISAAC



**Materialica+Research Group** studies problems in applied mathematics and computer sciences with applications to composites and biomaterials. The leader of the Group, Professor Vladimir Mityushev, developed a new Analytical Representative Volume Element (ARVE) theory originally derived to determine the effective properties of fibers composites. This computationally effective theory has been applying to various branches of science from random composites to self-organized systems. Among others ARVE is used for structural investigation of homogeneous and heterogeneous materials, particles and/or fiber reinforced composites, biomaterials and porous media. Effective elastic, thermal, electric, magnetic, etc., properties of random composites are investigated.

**Materialica+Research Group** offers cooperation in the following field:

- comparisons and analysis of monodispersed composites obtained through different technological processes;
- assessment of the technological stability in the context of preparation of a material with uniformly distributed reinforcing phase;
- determination of the minimum area (volume) of the representative cell for microscopic examination;
- detailed analysis of the impact of process parameters on the structure of composites, etc.;
- application of the machine learning technique;
- organizations master classes for various level scientists in applied mathematics and computer sciences, and their applications:

**materialica.plus**



## Meetings associated to ISAAC

### Workshop

“Strategy of excellence - interdisciplinary workshop”

10-13 April 2019, Pedagogical University, Krakow, Poland

Progress is transformation of the impossible  
into possible and possible into real.

*Zdzisław Dołatowski*

The above quote can be considered as the guiding principle of Interdisciplinary Workshop to support the long-term development plan for the Pedagogical University. The Workshop was related to the Polish reforms in science and high education outlined in the "Initiative of excellence - research university" program, one of the most important aspects of the Polish reforms (the Polish Constitution for Science)

The participants of the “Strategy of excellence - interdisciplinary workshop” include:

- 10 experts, the outstanding scientists representing various disciplines and research institutions from Cyprus, France, Georgia, Germany, Slovakia, Switzerland, Great Britain;
- 8 experts, the scientists and representatives of the National Science Center, NAWA agency and representatives of the socio-economic environment from Poland;
- about 150 representatives of the academic community of the Pedagogical University in Krakow.

Interdisciplinary Workshops in the areas of exact sciences, engineering and technical sciences (biology, physics, computer science, mathematics, materials engineering, special didactics) were carried out in parallel sessions, organized on 10-13 April by the international interdisciplinary team Materialica+ <http://www.materialica.plus/>, the program is attached. In addition, due to the conference "Education, communication and mediation of social and scientific problems - challenges for contemporary educators" organized by the Pedagogical Faculty at the same time as the Strategic Workshops, it was decided to refer some of the foreign scientists invited to participate in Strategic Workshops and representatives of the socio-economic environment (Center for Autism) to participate in this conference. They had an opportunity to discuss many interesting topics with scientists of the Pedagogical Faculty.

The workshop took place in an extremely friendly and honest atmosphere. Speakers shared the experiences of their own institutions to achieve scientific excellence, pointed out the most effective actions in development strategies, as well as current trends in the assessment of the activities of scientific and scientific-didactic institutions. Numerous planned and spontaneous discussions have also created new opportunities for the development of the scientific staff of the Pedagogical University. Discussing the research strategies often went directly to the discussion on the

education of students and doctoral students. A separate discussion was devoted to the development of interdisciplinary research at the Pedagogical University.

The possible establishment of the Interdisciplinary Center should start with the selection of research teams of the Pedagogical University, formal or informal, conducting interdisciplinary research with the participation of researchers from other centers, including foreign ones. A positive example is the research group Materialica+ currently conducting interdisciplinary investigations in six disciplines: Computer Science, Physics, Mathematics, Biology, Materials Science and Chemistry. Currently, activities are planned to extend the cooperation of the Materialica+ team with the Pedagogy Faculty in the use of IT tools supporting the learning process, which will result in an increase in the level of scientific research also carried out at the Faculty of Pedagogy.

Many benefits can be achieved by intensifying cooperation with the ISAAC (<http://isaacmath.org/home>) including participation at the nearest ISAAC Congress (Aveiro, July 29 - August 2, 2019)

<http://isaac2019.web.ua.pt/Webpage/Welcome.html>

During and after the Workshop, the recommendations of European specialists were presented in the form of expert opinions. In order to be included in the group of Polish Research Universities, experts pointed to the necessity to carry out bold and rapid reforms at the Pedagogical University, the goal of which would be clear, understandable and attractive for the whole academic community. This can be associated with the phrase of President John F. Kennedy in 1962 "go to Moon in this decade", which motivated the nation to an unprecedented increase of innovation. "After all, a far-reaching vision can be an irresistible catalyst, provided it is realistic enough to stimulate current activities".

Prof. Vladimir Mityushev



## Report about the conference OTHA 2019



Joel Esteban Restrepo Tangarife from Colombia, at the city hall in Rostov on Don, Russia, who receives the ISAAC price of life-membership from the ISAAC vice-president Joachim Toft. He received the award because of his strong contributions to potential theory and theory of special functions.



Elina Leonidovna Shiskina from Russia, at the city hall in Rostov on Don, Russia, after receiving the ISAAC price of life-membership. She received the award because of her strong contributions to integral transform, operator theory and partial differential equations.

The IX Annual International Scientific Conference "Modern Methods and Problems of Operator Theory and Harmonic Analysis and Their Applications (OTHA-2019)" took place from April 21-26, 2019 at the Southern Federal University. Conference website: <http://otha.sfedu.ru/conf2019>

More than 130 researchers from scientific and educational institutions worldwide participated in the OTHA conference. Among them, mathematicians from Russia, China, USA, UK, Israel, Finland, Spain, Portugal, Sweden, Mexico, Colombia, Armenia, Azerbaijan, Jordan, Iran, UAE, Belarus, Kazakhstan, Poland, Uzbekistan, Syria, etc. The list of plenary speakers: Alexandre Almeida (Portugal), Anatoly Antonevich (Belorussia), Oscar Blasco (Spain), Viktor Burenkov (Moscow), Mikhail Goldman (Moscow), Vagif Guliev (Azerbaijan), Alexey Karapetyants (Rostov-on-Don), Kazaros Kazarian (Spain), Vladislav Kravchenko (Mexico and Rostov-on-Don, Russia), Anatoly Kusraev (Vladikavkaz), Elijah Liflyand (Israel), Alexander Mikhailov (Great Britain), Helmuth Malonek (Portugal), Boris Mityagin (USA), Alexander Nazarov (St. Petersburg), Eugeny Panov (Velikiy Novgorod), Boris Plamenevsky (St. Petersburg), Vladimir Protasov (Moscow, Russia and Italy), Armen Sergeev (Moscow), Stefan Samko (Portugal), Natasha Samko (Norway), Yoshihiro Sawano (Japan), Andrei Shkalikov (Moscow), Maria Skopina (St. Petersburg), Alexandre Soldatov (Moscow), Jari Taskinen (Finland), Joachim Toft (Sweden), Sergey Vodopyanov (Novosibirsk).

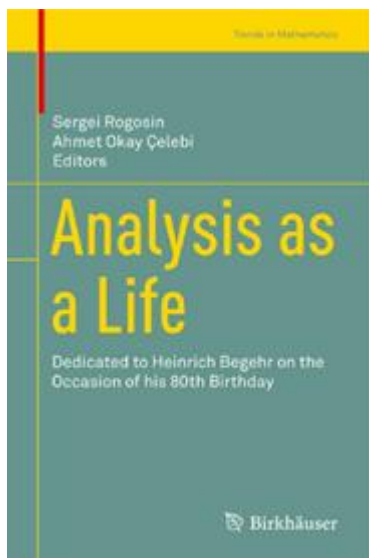
The following sessions were organized: Functional Analysis and Operator Theory, Theory of Functions and Approximation Theory, Differential Equations and Mathematical Physics, Probabilistic-Analytical Models and Methods, Bioinformatics and Mathematical Modeling, Hausdorff Operators and Related Topics. Thus, the focus of the conference is fundamental mathematics, but there were also considered problems of applied mathematics. The conference has a YouTube channel that hosts videos of plenary speakers from different years.

<https://www.youtube.com/channel/UCMC1h55SjWn5hkRShZ7fhEw>.

The conference is supported by the Regional Mathematical Center of the Southern Federal University in collaboration with the Institute of Mathematics, Mechanics and Computer Science of the Southern Federal University, and is also supported by grant from the Russian Foundation for Basic Research and by the ISAAC society. In fact, a competitive selection was organized prior to the conference among young scientists to receive a special award - permanent membership in the ISAAC community. Such an award was given on April 23rd to young mathematicians Joel Restrepo from the Regional Research and Educational Mathematical Center of the Southern Federal University and Shishkina Elina from Voronezh State University. The award was presented by ISAAC Vice President Professor Joachim Toft of Linneus University, Sweden.

Prof. Alexey Karapetyants

## Books related to ISAAC



© 2019

Rogosin, Sergei, Çelebi, Ahmet Okay (Eds.)

### Analysis as a Life

Dedicated to Heinrich Begehr on the Occasion of his 80th Birthday

- Tributes the excellent achievements of Heinrich Begehr.
- Contains several important research contributions from the different branches of analysis.
- Provides stories about the scientific life of Heinrich Begehr.

This is a book comprising selected papers of colleagues and friends of Heinrich



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Begehr on the occasion of his 80th birthday. It aims at being a tribute to the excellent achievements of Heinrich Begehr in complex analysis and complex differential equations, and especially to his prominent role as one of the creators and long-time leader of the International Society for Analysis, its Applications and Computation (ISAAC).

[Springer Verlag, Analysis as a Life](#)

Recently Birkhäuser Verlag – Springer Science published the book dedicated to 80<sup>th</sup> birthday of Professor Heinrich Begehr. In this book contributed known mathematicians playing an important role in ISAAC movement.

ISBN:978-3-030-02649-3

ISBN:978-3-030-02650-9 (eBook)

The editors of the book “**Analysis as a Life**”  
Sergei V. Rogosin, Ahmed Okay Celebi



## New members

We welcome the following new members (see also supplementary files):

Broucke, Frederik

Coriasco, Sandro

Czapla, Roman

Drygas, Piotr

Faustino, Nelson

Feichtinger, Hans Georg

Girardi, Giovanni

Hadj Kaddour, Tayeb

Hayrapetyan, Ruben

Johnson, Jon

Kycia, Radoslaw

Kyrtka, Pawel

Lastra, Alberto

Lu, Xiaojun

Nawalaniec, Wojciech

Neyt, Lenny

Rylko, Natalia

Sajid, Mohammad

Sanz, Javier

Spitkovsky, Ilya

Suragan, Durvudkhan

Üster, Rüya

Ulan, Maria

Vojnovic, Ivana

Wahlberg, Patrik

Yang, Xiao-Jun



Some young scientists who celebrate their new ISAAC memberships. We (the ISAAC officers) emphasize that it is NOT mandatory to perform such celebration in roman legionnaire suits.

## Webpage and postal address for ISAAC:

<http://www.isaacmath.org/home/>

ISAAC  
Fakulty of Technology, building B  
Linnæus University  
35195 Växjö  
Sweden