ISAAC - Newsletter December

Message of the President

Dear ISAAC members,

The year 2023 is fast approaching its end. All in all, it has been a successful year for our society. In July we had our first ISAAC congress in Latin America, the 14th ISAAC congress in Ribeirão Preto, Brazil. We started there a new prize which aims to distinguish young and very active ISAAC members. We also continued to support conferences and member activities worldwide, and this is reflected in the way ISAAC is enlarging. We are also looking forward to the next ISAAC congress at Nazarbaev University in Astana (Kazakhstan) whose organisation is progressing exceptionally well.

Unfortunately, not all news are good news. We also witnessed the passing of several cherished and influential - in terms of research activities - members. While we are grieving for them it is a measure of confort to know that their legacy lives on.

We are also arriving at the time where we are called to elect the new ISAAC board for the bi-anual period of 2024-2026. This is an important decision for our community and I can only ask everybody to cast his vote.

Finally, this is also the time of the year where we can enjoy Christmas and New Year with our families and friends without the daily duties, as well as finding time to relax and do what we like best – Mathematics.

Wishes of a Merry Christmas and a Happy New and Successful Year 2024

Uwe Kähler
President of ISAAC

Marius Mantoiu (1961-2023)

It is with great sadness that we announce the passing of Marius Mantoiu (1961-2023), a brilliant mathematician who contributed greatly to the field of noncommutative analysis and mathematical physics. He was born in 1961 in Romania, and earned his Ph.D. in Mathematics from the Université Paris 7 “Denis Diderot” in France in 1993. After several positions throughout his life, in the last years he was working at the Department of Mathematics of the University of Chile.

Throughout his career, Mantoiu focused on the theory of operator algebras and worked extensively on C*-algebras, von Neumann algebras, and their applications to problems in mathematical physics. He made significant contributions to the understanding of these areas, providing elegant and deep proofs in his research papers. He is also well known for his contributions to the development of the magnetic pseudo-differential calculus. In the latter years, he was greatly contributing to the development of the theory of pseudo-differential operators in the setting of general groups of several types: unimodular and nonunimodular, with applications to various questions, like smoothing estimates for evolution PDEs, most notably in the setting of general graded Lie groups. Mantoiu's work will continue to have a profound impact on mathematics for years to come.

Mantoiu was a dedicated professor, mentor, and researcher. He taught at several institutions, and his lectures are conferences always attracted a lot of interest and led to fruitful discussions. One of his latter lectures can be watched on YouTube at

https://www.youtube.com/watch?v=NcWmCSbjKzw

In addition to his academic achievements, Mantoiu was also a beloved family man and a loyal friend. Marius Mantoiu will be deeply missed by his family, friends, colleagues. His legacy in the field of mathematics will be remembered for years to come.

Frank Sommen (1956-2023)

Born in 1956 Frank Sommen made his PhD at Ghent University in 1980 under the supervision of Richard Delanghe. After a Post-Doc at Oxford University and a Humboldt fellowship at RWTH Aachen he continued to work at Ghent University until his retirement in 2021. Frank Sommen’s work was extremely influential in the area of Quaternionic and Clifford analysis. For almost 40 years most major developments in this area were either initiated by him or based on his work. This showed his unusual high level of creativity. He saw himself more like an architect who lays the foundation for others. After he established the basic tools and methods for a specific topic he would simply move on. This included the creation of methods Fischer decompositions and Cauchy-Kovaleskaya extensions for Clifford-valued functions, construction of spherical monogenics, Hermitean Clifford analysis, as well as the study of Dirac operators on manifolds. His method of using Sommen-Weyl relations to create an operator algebra for construction of monogenic polynomials were only 15 years later formalized as Howe dual pair construction. His contributions to connect hypercomplex analysis with areas like integral geometry, wavelets, special functions, and partial differential equations gave work to many mathematicians all over the work. His exceptional capacity in making geometric calculations in a time where algebraic calculations rule made him special.
He was always willing to share his ideas which lead to publications with more than 60 co-authors.

His particular sense of humor was treasured by many of his friends and colleagues and he will be sorely missed.

ISAAC award 2023

The winners of the 2023 edition of the ISAAC award were Danylo Radchenko and Hubert Lacoin.

Danylo Radchenko

Danylo Radchenko obtained his PhD in Mathematics in 2016 from University of Bonn. He has held successively several post-doctoral positions: at The Abdus Salam International Centre for Theoretical Physics, Trieste, the Max Planck Institute for Mathematics, Bonn, and he held the prestigious Hermann-Weyl-Instructor at the ETH Zurich. Currently, he is a researcher at the CNRS, Laboratoire Paul Painlevé, Lille University.

His Mathematical interests are in the fields of Harmonic Analysis, Discrete Geometry and Optimization, Computational Number Theory, and Algebraic Combinatorics, among others. Already in parallel to his PhD studies, Danylo Radchenko collaborated with Maryna Viazovska on the sphere packing problem, a problem which he solved in dimension 24 using its unexpected connection to the theory of modular forms. This work has had a major impact in harmonic analysis in recent years, not only for interpolation and sampling, but also for its connections with other topics.

On the photo – Danylo Radchenko (left) at his main talk

For instance, he showed that the uniqueness aspect of the recent Fourier interpolation formula of Radchenko and Viazovska is linked to the Heisenberg uniqueness study for the Klein-Gordon equation and the lattice-cross of critical density.

Hubert Lacoin

Hubert Lacoin obtained his PhD at Université Paris 7 “Denis Diderot” in 2005. After working at Rome and CEREMADE he became professor at IMPA in 2014. He made major contributions in the theory of probability and stochastic processes, such as about pinning problems for surface models and in Gaussian multiplicative chaos.

On the photo – Marcelo Ebert (left) and Hubert Lacoin (right)

President’s award for young ISAACs:

On the occasion of the 14th ISAAC congress ISAAC introduced a new prize. This new prize aims to distinguish young ISAAC members within the society who not only have an outstanding scientific merit, but also worked actively in the society and in its promotional activities.

The first recipient of this prize, Bojan Prangoski, is a perfect embodiment of these qualities. He obtained his PhD from the University of Novi Sad, Serbia, (2013), under the supervision of Professor Stevan Pilipovic. He has been awarded with an ISAAC life-membership at the conference in General functions in 2018.

On the photo – Bojan Prangoski (left) at the award reception

Bojan Prangoski’s scientific contribution and interests are broad, ranging from Functional Analysis, Pseudo-Differential operators, to Time-Frequency analysis. His main contributions include the resolution of a 40 years old problem concerning the convolution in spaces of Roumieu ultradistributions, his own class of pseudo-differential operators, convolutors, multipliers and the Laplace transform of quasi-analytic and non-quasi analytic ultradistributions, as well as undestanding of spaces of ultradistributions in general.

Moreover, he was always willing to collaborate with members of ISAAC and promoted ISAAC, in particular inside the Special Interest group on Generalized Functions presenting an excellent example of a young and active mathematician inside ISAAC.

ISAAC related journals:

Journal of Mathematical Sciences (Series A)

Journal of Mathematical Sciences is an associated to ISAAC journal (since 2022). The series A in JMS is headed by the ISAAC member Alexey Karapetyans, and among the EB of the journal there are ISAAC members. The Series A in the Journal of Mathematical Sciences was launched in 2021. At the plenary opening of the 13th ISAAC Congress (August 2–August 6, 2021, Ghent, Belgium) Dr. Thomas Hempfling, Editorial Director, Mathematics Birkhäuser, announced the project and offered to Alexey Karapetyants to be the Editor-in-Chief of the journal "Journal of Mathematical Sciences" Series A. Clemens Heine, Executive Editor, Applied Mathematics / Computer Sciences, Birkhäuser, supervised the start of the project. In 2021, the editorial board of the journal JMS (Series A) was formed. It consists of leading scientists from different countries. Series A publishes articles in English. The regular review policy is applied to each paper: at least two positive independent anonymous reports are

required for the acceptance of the manuscript. Submissions must meet high scientific publication standards with clear evidence of the novelty and scientific importance of the results. The scope of the Series A can be expressed in the sentence "Mathematical analysis in a broad sense". As of today, there are 115 Manuscripts published online. Among the authors are researchers from many countries, including Algeria, Argentina, Armenia, Australia, Azerbaijan, Bangladesh, Belarus, Belgium, Brazil, Burkina Faso, Cameroon, China, Colombia, Egypt, Ethiopia, Finland, Gabon, Georgia, Germany, Ghana, Great Britain, India, Iran, Iraq, Ireland, Israel, Italy, Japan, Jordan, Kazakhstan, Mexico, Morocco, Portugal, Russian Federation, Singapore, Spain, Tunisia, Turkey, UAE, Ukraine, USA, Uzbekistan, Vietnam, etc.

Special Issues are the very important strategy within the JMS. Among the SI in 2023 there are the following ones:

Special Issue: "Mathematical Analysis and Differential Equations".

Guest Editors - Professors Aghavard K. Khachatryan, Gegham G. Gevorgyan, and Tigran N. Harutyunyan

Special Issue: Selected papers from the XIII Annual International Conference of the Georgian Mathematical Union.

Guest editors – Professors Alexander Meskhi and David Natroshvili

Special Issue: In honor of Professor Anatoly G. Kusraev in the occasion of his 70th birthday.

Guest editor – Professor Semen S. Kutateladze

14th ISAAC congress

The 14th ISAAC congress took place at the Department of Computer Science and Mathematics from University of São Paulo, Campus Ribeirão Preto, from July 17 to July 21, 2023

The conference had around 250 participants from all the continents who listened to 215 talks in 16 thematic sessions. Due to some well-known travel restrictions for some colleagues, two sessions was realized in hybrid form.

Conference photo 1

The Plenary speakers were

- Zdzislaw Brzezniak (University of York)
- Loukas Grafakos (University of Missouri)
- Hubert Lacoin (IMPA)
- Irena Lasiecka (University of Memphis)
- Anna Laura Mazzucato (Penn State University)
- Carlos Pérez Moreno (University of the Basque Country and BCAM)
- Monica Musso (University of Bath)
- Gustavo Ponce (University of California)
- Danylo Radchenko (University of Lille).

They provided a broad overview on recent developments in their respective areas.

The conference was sponsored by CAPES, CNPq, FAPESP, INCTMat, ISAAC Society, PRPI-USP and Università degli Studi di Padova. Thanks to these agencies we could give financial support to 56 participants, in particular to several young researchers or PhD students without own financial support.

More details and photos can be found at

https://dcm.ffclrp.usp.br/isaac/index.html

Conference photo 2

Workshop on Microlocal Analysis and Mathematical Physics, in honor of Anders Melin's 80th birthday

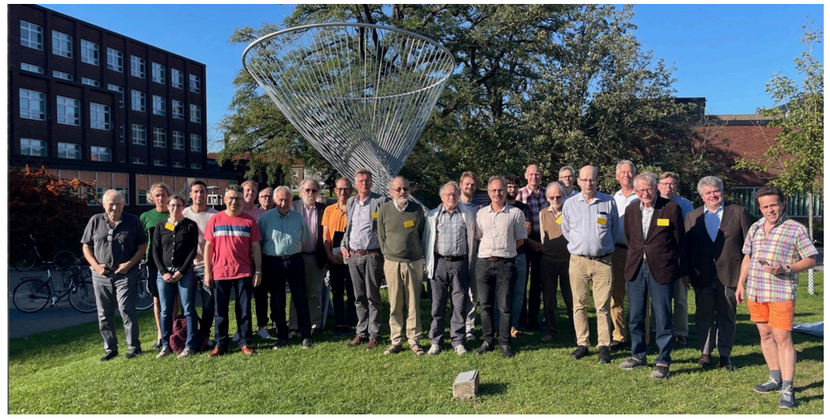
Centre for Mathematical Sciences, Lund University, Sweden, September 19-21, 2023

The conference took place in Hörmandersalen at the department of Mathematics, Lund University, Sweden. There were 15 speakers on high level who presented interesting talks. There were around 40 participants. The atmosphere was friendly and social. The organizers were more than satisfied with the event, and the participants seemed to enjoy as well.

The aims of the conference were to honor Anders Melin on his 80th birthday, and to gather scientists in micro-local analysis and mathematical physics.

Anders Melin: Anders Melin defended his Ph.D. 1973. The title of the thesis was ***Lower Bounds for Pseudodifferential Operators***, and his supervisor was Lars Hörmander. Already in his thesis he presented one of the magic inequalities in pseudodifferential calculus, after that named Melin's inequality.

Since then Melin has contributed with several important results in micro-local analysis, mathematical physics and other fields. For example, his fundamental solution for the operator $\Delta_x - \Delta_y$ from the middle of 80th is still amazing. He has also contributed a lot to scattering theory and achieved several fundamental estimates for the scattering operators.



From left to right: Ari Laptev, Peter Pettersson, Christine Pfeuffer, Samuele Sottile, Michael Hitrik, Unknown, Unknown, Tomas Claesson, Richard Melrose, Niels-Christian Overgaard, Ragnar Sigurdsson, Christer Bennewitz, Grigori Rozenblum, Unknown, Alexei Iantchenko, Unknown, Joachim Toft, Jan Boman, Jens Wittsten, Anders Holst, Nils Dencker, Anders Melin, Michael Abrahamsson, Maciej Zworski, Pavel Kurasov

Speakers: Ingrid Beltita, Christer Bennewitz, Jan Boman, Nils Dencker, Gerd Grubb, Michael Hitrik, Pavel Kurasov, Ari Laptev, Richard Melrose, Alberto Parmeggiani (through zoom), Grigori Rozenblum, Ragnar Sigurdsson, Johannes Sjöstrand, Jan Philip Solovej, Maciej Zworski.

Organizers: Michael Hitrik, Anders Holst, Joachim Toft

The OTHA conference and OTHA Spring/Fall workshops.

OTHA-2023.

From August 20 to August 25, the international scientific conference ***OTHA-2023: Modern methods, problems and applications of operator theory and harmonic analysis*** was held at the Southern Federal University. There were participants from various regions of Russia, as well as from Belarus, Armenia, Serbia, UAE, India, Cameroon, Iran, Ecuador, Italy, Georgia, Tajikistan and other countries. During the conference, 4 parallel sessions worked: Functional analysis, operator theory and approximation theory; Differential equations and mathematical physics; Probabilistic-analytical models and methods; Special session dedicated to the memory of Professor S.B. Klimentov.

Conference plenary lecturers: Alexey Karapetyants (Russia/Rostov-on-Don), Adolf Mirotin (Belarus), Krishnan Narayanan (India), Alexander Bufetov (Russia/Moscow), Andrey Muravnik (Russia/Moscow), Francesco Mainardi (Italy), Fedorovsky Konstantin (Russia/Moscow), Apushkinskaya Daria (Russia/Moscow), Rossovsky Leonid (Russia/Moscow), Smorodina Natalia (Russia/St. Petersburg), Soldatov Alexander (Russia/Moscow), Gliklich Yuri (Russia/Voronezh), Yurko Vyacheslav (Russia/Saratov), Arsenovic Milos (Serbia), Jerbashyan Armen (Armenia), Skopina Maria (Russia/St. Petersburg), Ilolov Mamadsho (Tajikistan), Kusraeva Zalina (Russia/Vladikavkaz), Vagharshakyan Armen (Armenia), Khoury Suheil (UAE).

The lectures of the plenary speakers were recorded and after proper editing are uploaded on the conference channel

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

OTHA Conference 2023

OTHA-Spring-2023 in Armenia - Celebrating the 80th anniversary of the Armenian Academy of Sciences

International scientific workshop OTHA Spring 2023 was held on 18-22 April 2023 in the Institute of Mathematics of NAS RA (Yerevan). The Workshop was dedicated to the 80th anniversary of the National Academy of Sciences of Armenia. The organizers and co-chairs of the organizing committee are A.N.Karapetyants and R.G.Aramyan. The program of the OTHA Spring 2023 included a number of invited lectures by: Jim Byrnes (USA), Luigi D'Onofrio (Italy), Francisco García Pacheco (Spain), Gegham Gevorgyan (Armenia), Alexey Karapetyants (Russia), Suheil Khoury (UAE), Vladislav Kravchenko (Mexico), Michael Lacey (USA), Fernando León Saavedra (Spain), Elijah Liflyand (Israel), Issam Louhichi (UAE), Helmuth Malonek (Portugal), Ryskul Oinarov (Kazakhstan), Armen Sergeev (Russia), Andrei Shkalikov (Russia), Maria Skopina (Russia). A special issue of the Journal of Mathematical Sciences is in the process of being formed based on the results of the workshop. As a satellite event, a one-day conference in the Southern Federal University was held on April 28. Link to Armenia's tv first channel report:

https://youtu.be/jr-N7f4N7_A

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The representatives of Springer Nature A.Biryukov and T.Golea (Germany) presented an exhibition of books and journals, which were subsequently donated to the library of the Institute.

The **OTHA Fall 2023** is coming soon, it is scheduled in *Sochi, December 17-21, 2023*.
All information about the OTHA conferences and workshops are here

https://otha.sfedu.ru/

More Anomalies in Partial Differential Equations

18-22 September 2023

Invited Speakers:

Michele Benzi
Ferruccio Colombini
Sandro Coriasco
Scipio Cuccagna
Marcello D'Abbicco
Laszlo Erdös
Serena Federico
Charles Fefferman
Claudia Garetto
Marina Ghisi
Massimo Gobbino
Sandra Lucente
Marcello Malagutti
Tokio Matsuyama
Gerardo Mendoza
Vesselin Petkov
Martino Prizzi
Cid Reyes-Bustos
Luigi Rodino
Michael Ruzhansky
Gabriele Sbaiz
Stefano Scrobogna
Francesco Serra Cassano
Giovanni Taglialatela
Masato Wakayama
Jens Wirth
Jared Wunsch
Claude Zuily

SCIENTIFIC AND ORGANIZING COMMITTEE
Massimo Cicognani
Daniele Del Santo
Francesco Fanelli
Alberto Parmeggiani
Michael Reissig

The conference **More Anomalies in Partial Differential Equations** took place in the castle of Bertinoro 2023 from September 18th to 22nd. This castle is one visiting center of the University of Bologna located on the top of the village Bertinoro close to Cesena in Emilia-Romagna. Almost 50 mathematicians have met there to celebrate the 60th birthday of *Daniele Del Santo* and *Alberto Parmeggiani.*

Daniele Del Santo: he got his Ph.D. in Functional Analysis and Applications, S.I.S.S.A./I.S.A.S., Trieste, 1992, supervisor: Ferruccio Colombini, he became Associate Professor in 1998 and Full Professor in 2005 at University of Trieste, he has been Deputy Rector for Didactics and Student Politics from 2012 to 2019 and for several years Head of Department of Mathematics and Informatics or Faculty of Mathematics and Geosciences, he is married and has two daughters, he is a member of ISAAC and organized sessions during several ISAAC congresses

Alberto Parmeggiani: he got his Ph.D. in Mathematics, Princeton University, 1993, supervisor: Charles Fefferman, Fields Medallist in 1978, he became Associate Professor in 1998 and Full Professor in 2001 at University of Bologna, he has been Director of the Ph.D. Program in Mathematics of University of Bologna from 2006 to 2013, he is married and has one son, he was plenary speaker at the 11th ISAAC congress 2017 in Växjö in Sweden

During the conference 28 speakers from all over the world honored the scientific activities of the jubilarians and showed their relations to both of them. The outcome of the conference has been positive from the point of view of sharing different perspectives on modern topics of research on PDEs. There was an excellent chance, in particular, for the participating Ph.D. students to strengthen the scientific relations to other participants and speakers of the conference.

The conference was organized by *Massimo Cicognani* (Bologna), *Francesco Fanelli* (Bilbao, Lyon) and *Michael Reissig* (Freiberg).

Presentation of new ISAAC congress:

15th ISAAC Congress, Nazabaryev University, Astana, Kazakhstan, July 21-25, 2024

The 15th ISAAC congress will take place at Nazabaryev University, Astana, Kazakhstan, from July 21-25, 2024. Confirmed plenary speakers are Manuel Del Pino, Hongjie Dong, Yozhikazu Giga, Martin Hairer, Carlos Kenig, Ari Laptev, Alexei A. Mailybaev, Nader Masmoudi, Mete Soner, Carola-Bibiane Schönlieb, Susanna Terracini, Gang Tian.

More infos can be found under

https://www.isaac2025.org

Currently, the organizers are looking for proposals for new sessions. Proposals can be send to

info@isaac2025.org

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Announcements of conferences:

International conference on Pseudo-Differential Operators and Related Topics, 29 January - 2 February, 2024

We would like to announce our forthcoming international conference on ``Pseudo-Differential Operators and Related Topics" that will take place at the Ghent Analysis \& PDE Center from 29 January to 2 February, 2024. This is an international conference with a special focus on the latest developments in the field of pseudo-differential operators and a broad range of related topics.

Following a tradition of conferences on pseudo-differential operators before the pandemic, the conference will take place in person.

If you would like to participate, please contact

Vishvesh Kumar (vishvesh.kumar@ugent.be)

or

David Rottensteiner (david.rottensteiner@ugent.be)

We also plan to publish a book of extended abstracts with Birkhäuser.

International Conference on Noncommutative Geometry, Analysis on Groups, and Mathematical Physics

Venue: Zoom

https://analysis-pde.org/noncommutative-analysis-conference/

International Conference on hypercomplex analysis and its applications

Celebrating Paula Cerejeiras' 60th Birthday, University of Aveiro, March 18 - 22, 2024

https://sites.google.com/view/ichaa-2024

Workshop "Women in Mathematics" 13 May 2024.

Ghent Analysis & PDE Center, Ghent University, Belgium

Visit the confirmed Speakers and participants on the website:

https://analysis-pde.org/2023/11/21/women-in-mathematics-2024

ODYSSEUS METHUSALEM

Ghent Analysis PDE

Organising Committee: Marianna Chatzakou, Jozefien D'haeseleer, Jan de Beule, Michael Ruzhansky.

Scientific Committee: Jan de Beule, Claudia Garetto, Sylvie Paycha, Michael Ruzhansky, Leo Storme.

ICMAM Latin America 2024, October 14th-18th

ICMAM Latin America

From 2020, the research organisation ICMAM Latin America aims to advance mathematical research in Latin America and the Caribbean, enhance its visibility, and foster collaboration among mathematicians from the region and abroad. The ICMAM conferences will be held biennially, either in a virtual format or in-person. Update information about our activities can be found on our website:

https://sites.google.com/view/icmamlatinamerica/home

https://sites.google.com/view/icmam2024/home

Confirmed invited lecturers:

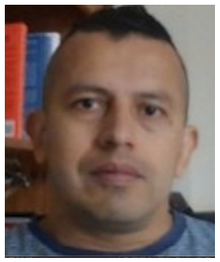
Pierre-Louis Lions,
Peter Sarnak,
Avi Wigderson,
Efim Zelmanov

New members

Bienvenido Barraza Martinez

Bienvenido Barraza Martinez obtained his PhD at the University of Mainz (Germany) in 2009. He currently works at the Universidad del Norte in Barranquilla (Colombia) and his areas of expertise are Partial Differential equations and Mathematical Physics.

Julio Delgado



Julio Delgado obtained his PhD at the Pierre and Marie Curie University in 2005. After working at the Imperial College and Queen Mary University he is now professor at the Universidad del Valle. His research interests include Fourier Analysis, Functional Analysis, Partial Differential Equations (PDE) and Spectral Theory.

Arran Fernandez

Arran Fernandez graduated aged 23 with a PhD from the University of Cambridge. He currently works at the Eastern Mediterranean University in Northern Cyprus. His research interests focus on fractional calculus, including its connections with complex and Clifford analysis, abstract algebra via operational calculus, and special functions such as Mittag-Leffler and zeta functions.

Jairo Hernández Monzón

Jairo Hernández Monzón obtained his PhD at the University of Mainz in 2003. Currently he is a professor at Universidad del Norte, Barranquilla-Colombia. His research interests are in partial differential equations, mathematical physics, and harmonic analysis.

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And after an unusually long newsletter...

... full of bittersweet news we cut the chase and go directly to the main point.

To all a Merry Christmas and a Happy New Year 2024