

ISAAC - Newsletter December

Dear ISAAC members,

The year 2020 will be soon over. A year that we will all remember for a long time. The Covid 19 virus has changed our lives a lot so far, but we have learned to adjust to the new conditions. The teaching is online, the scientific co-operation works online as well. What does the new year 2021 bring us? At least in my region we will have from next Monday a hard lockdown. During the Christmas time we have to celebrate the holidays under strict limitations. I guess that we have a similar situation in many other regions and countries. In a year the situation will hopefully have normalized. Nevertheless, we should enjoy the Christmas season. I wish all of you, your families and your collaborators a Merry Christmas and a Happy New Year 2021.

Thanks for your support to ISAAC.

Let us meet again during the 13th ISAAC congress in Ghent in Belgium organized as an online conference.

Michael Reissig
President of ISAAC

SIG in Generalized Functions (GF)

The field of generalized functions has a long history, going back at least to aspects of Fourier analysis and operational calculus in the 19th century. Its modern form rests on the pioneering work of Sergei Sobolev on weak solutions of partial differential equations in the 1930s and of Laurent Schwartz in the 1940s, who laid the foundations of the theory of distributions. Due to the work of many influential mathematicians of the 20th century, the theory has branched in various directions, among others to generalized stochastic processes, nonlinear partial differential equations, signal processing, and nonsmooth differential geometry. One may say that the theory of generalized functions has become one of the pillars of modern analysis.

The SIG “Generalized Functions” is rooted in this tradition, and today consists of a vibrant community of researchers from more than 30 countries. The scope of its research comprises, in particular, distributions, ultradistributions, hyperfunctions and algebras of generalized functions, as well as applications in partial differential equations, pseudodifferential and Fourier integral operators, harmonic analysis, functional analysis, stochastic analysis and differential geometry.

The researchers in the SIG maintain close ties among each other, mainly due to a large number of joint meetings and conferences, as well as other smaller scale activities. Historically, what has over the decades turned into the present Generalized Functions community can be traced back to a series of conferences organized by Jan Mikusiński in Poland in the 1960s. These conferences soon adopted the brand name GF, and over time came to be held in other countries as well, e.g., in Serbia, Croatia, France, UK, or Austria.

Especially over the past decades the lion’s share of the merit for keeping the series of GF conferences going is due to Stevan Pilipović and his research group at the University of Novi Sad. Not only did he organize many such conferences and related events at his home university, but he is also one of the important driving forces in reaching out to other communities in analysis and applied mathematics, and in forming close ties to these groups. By now, a number of continuing collaborations and joint activities exist with researchers in harmonic analysis, partial differential equations, pseudodifferential and Fourier integral operators, mathematical physics, and related areas.

Within ISAAC, researchers in GF and adjacent fields had presented their results in various interest groups for many years. It became more and more clear that a unifying platform for GF was needed, that also would include GF topics not represented by the existing SIGs. Thus, after the 2009 GF conference in Vienna, at the initiative of Michael Oberguggenberger and Stevan Pilipović, a committee was founded whose two tasks were (a) to establish a SIG on GF within ISAAC and (ii) prepare the formation of an independent association on GF. The SIG “Generalized Functions” was established in 2010 under the ISAAC-presidency of Michael Ruzhansky. The SIG took up its activities at the ISAAC congress in Moscow 2011, organizing the first special session on generalized functions. In 2012, the International Association for Generalized Functions (IAGF) was founded, which subsequently took up its task of managing a regular series of GF conferences, having been held biannually since 2014.

The ideal framework for the cooperation with other, similarly organized professional societies is, of course, provided by ISAAC. One of the main tasks of the IAGF therefore consists in supporting the SIG “Generalized Functions” within ISAAC, and helping to organize the Special Sessions on GF at the ISAAC congresses in the years between GF conferences. Since its initiation, the SIG has been instrumental in shaping the profile of the GF community in all the ISAAC conferences.

Emphasizing the close connections and the intensive collaborations between the communities, in each ISAAC conference since the one in Krakow in 2013 there have been joint sessions between the SIGs in Generalized Functions (IGGF), Pseudo-Differential Operators (IGPDO), and Partial Differential Equations (IGPDE). This has laid the groundwork for an ever increasing number of cross-community collaborations and is an integral part for securing the continued relevance of the field of generalized functions in present day mathematics.

Michael Kunzinger, Michael Oberguggenberger

SIG in Complex Variables and Potential Theory (CVPT)

The SIG Complex Variables and Potential Theory (CVPT) has been organized by Professor Tamrazov also one of ISAAC founders. As a section at ISAAC congresses it appeared for the first time (entitled as Potential Theory) at the second ISAAC congress held in Japan in 1999. Later Professor Massimo Lanza de Cristoforis joined as a co-organizer of the SIG CVPT and starting from the fifth ISAAC Congress (Catania, 2005) the SIG CVPT has been included as a section in all the following ISAAC congresses. Unfortunately, in 2012 our leader and teacher - Professor Tamrazov passed away. Now the organizers of the SIG CVPT are: Tahir Aliyev Azeroglu, Anatoly Golberg, Massimo Lanza de Cristoforis, Sergey Plaksa.

The SIG CVPT is devoted to the wide range of directions of Complex Analysis, Potential Theory, their applications and related topics and stems from the group of participants of the corresponding section of the ISAAC Congress.

Our main goals include: organizing our special section at the future ISAAC Congresses, organizing ISAAC related events as congresses and schools such as annual workshops in Complex and Harmonic Analysis at Holon, the Mini-courses in Mathematical Analysis in Padova, the Workshops in Mechanics and Complex Analysis in Ukraine, publishing special issues in journals or chapters in special volumes gathering our results, exchanging scholars and postdoctoral students, exchanging information concerning both scientific interests and academic positions.

During the relatively long period (1999-2020) of existence of the SIG CVPT, the following mathematicians took an active part and were included in the list of our SIG: Fahreddin Abdullayev, Ricardo Abreu Blaya, Olena Afanasieva, Mark Agranovsky, Ramazan Akgun, Tahir Aliyev Azeroglu, Tugba Akyel, Elza Bakhtigareeva, Alexander Bakhtin, Grigor Barsegian, Juan Bory Reyes, Melkana Brakalova, Alberto Cialdea, Mihai Cristea, Irada Dadashova, Iryna Danega, Matteo Dalla Riva, Vladimir Dubinin, Mark Elin, Arturo Fernandez Arias, Oleg Gerus, Grigory Giorgadze, Anatoly Golberg, Serhii Gryshchuk, Vladimir Gutlyanskii, Ali Guven, Mansur Isgenderoglu, Daniyal M. Israfilzade, H. Turgay Kaptanoglu, Dmitry Karp, Lavi Karp, Vladimir Kisil, Bogdan Klishchuk, Garbriela Kohr, Mirela Kohr, Gershon Kresin, Samuel Krushkal, Massimo Lanza de Cristoforis, Flavia Lanzara, Julian Lawrinowicz, Vita Leonessa, Elijah Lifyand, M. Elena Luna-Elizarraras, Paolo Luzzini, Angelica Malaspina, Jamal Mamedkhanov, Nino Manjavidze, Javad Mashreghi, Vladimir Maz'ya, Paolo Musolino, Mohamed Nasser, Emil Novruz, Bulent Nafi Ornek, Sergiy Plaksa, Roman Pukhtaievych, Vladimir Ryazanov, Ruslan Salimov, Evgeny Sevost'yanov, Michael Shapiro, Tatyana Shaposhnikova, David Shoikhet, Vitali Shpakivskyi, Promarz Tamrazov, Ibrahim Tekin, Yurii Zelinskii from various countries: Armenia, Azerbaijan, Canada, Cuba, Georgia, Israel, Italy, Poland, Romania, Russia, Saudi Arabia, Spain, Sweden, Turkey, UK, Ukraine, USA.

In 2020 the members of SIG CVPT organized two international events online Mini-courses in Mathematical Analysis (September 14-17) and Analysis Day II at HIT (January 19) in association with ISAAC.

Anatoly Golberg

Conferences and Intensive Courses associated to ISAAC

International Conference on Generalized Functions GF2020

Ghent, August 31 – September 4, 2020

The GF2020 counted with 77 participants 21 countries. There were 56 lectures delivered by experts in the field of generalized functions and related areas. The conference was dedicated to the 70th birthday of Prof. Stevan Pilipovic.

The International Conference on Generalized Functions GF2020 was organized by the Department of Mathematics: Analysis, Logic and Discrete Mathematics of Ghent University. The GF2020 was sponsored by the Research Foundation Flanders (FWO), the Faculty of Sciences of Ghent University, the ISAAC, and the Journal Axioms.

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The conference took place in Ghent and during the originally scheduled period, namely, August 31 to September 4, 2020. However, due to the corona virus outbreak, it was decided to make several modifications in the conference organization. In fact, the conference took place in a hybrid fashion. So, a number of participants came to Ghent in person, while others followed the conference or delivered their talks remotely via Zoom.

There were 77 participants 21 countries around the world. The following countries were represented in the GF2020: Algeria, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, China, Croatia, France, Germany, India, Italy, Japan, North Macedonia, Poland, Portugal, Russia, Serbia, South Korea, Sweden, USA. There were in total 56 talks delivered at the conference consisting of 9 plenary lectures and 47 contributed talks (30 minutes long). In addition, Prof. Stevan Pilipovic, to whom the conference was dedicated, gave an opening talk on the long-standing history of the conference series International Conferences on Generalized Functions.

The plenary lecturers

- * Marco Cappiello (University of Turin)
- * Ricardo Estrada (Louisiana State University)
- * Michael Kunzinger (University of Vienna)
- * Bojan Prangoski (University of Skopje)
- * Armin Rainer (University of Vienna)
- * Mitsuru Sugimoto (Nagoya University)
- * Joachim Toft (Linnaeus University)
- * Jochen Wengenroth (University of Trier)
- * Jens Wirth (University of Stuttgart)

The scientific talks delivered at the GF2020 covered a broad range of representative topics in the field of Generalized Functions and closely related research areas. The general themes were the linear and non-linear theories of generalized functions, as well as their applications. Slides of all talks are available at the conference website:

<https://cage.ugent.be/gf2020/>

There were three prizes awarded to the best paper presentations by mathematician (under 40). The awards were sponsored by the Journal Axioms. The winners of the prizes were: Andreas Debrouwere (Ghent University), Bojan Prangoski (University of Skopje), and S. Ivan Trapasso (Polytechnical University of Turin). Besides scientific excellence of the contributions, the selection criterion included relevance of candidate's contributions to the field of Generalized Functions.

Organizing committee: Jasson Vindas (chair), Sandro Coriasco, Andreas Debrouwere, Michael Ruzhansky, Iuliu Sorin Pop, Hans Vernaëve.

Scientific committee: José Bonet, Hans Feichtinger, Günther Hörmann, Irina Melnikova, Michael Oberguggenberger, Stevan Pilipović, Iuliu Sorin Pop, Luigi Rodino, Michael Ruzhansky, James Vickers, Jasson Vindas.

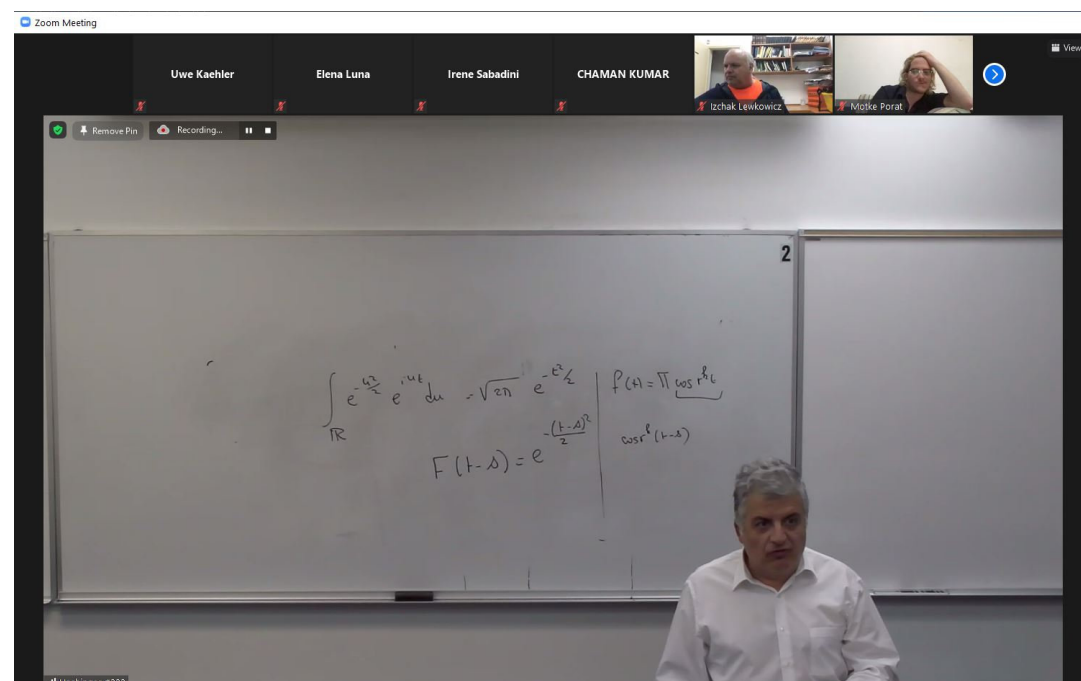
Online activities of our Special Interest Groups

International Intensive Courses dedicated to Dirac operators, Hypercomplex and Harmonic Analysis:

The SIG on Quaternionic and Clifford analysis together with Chapman University (U.S.A.), Politecnico di Milano (Italy) and the University of Aveiro (Portugal) started an online series of International Intensive Courses dedicated to Dirac operators, Hypercomplex and Harmonic Analysis. The first edition was held in November/December 2020 with a series of lecture by Daniel Alpay on Positive Definite Functions and Reproducing Kernel Spaces. More than 150 participants from all continents (except Antarctica) followed these lectures. It is planned to have 3 courses per year with the courses in 2021 being given by Der-Chen Chang (Washington, D.C.), Michael Ruzhansky (Ghent) and Alexander Strohmaier (Leeds).

More details can be found under

http://sweet.ua.pt/pceres/ICC_Dirac/Webpage/Home.html

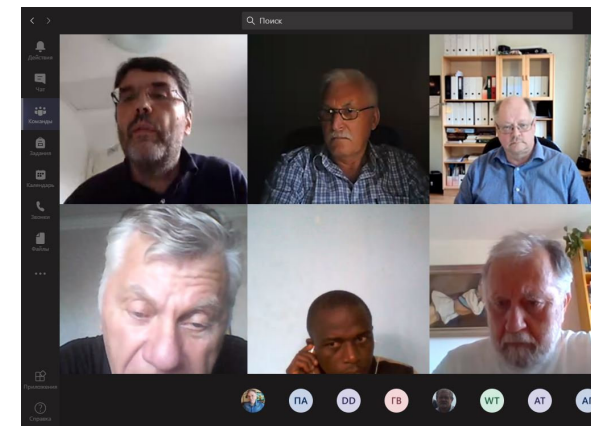


On the photo – screen shoot of D. Alpay lecture

Online activities of OTHA:

Despite the coronavirus times, the Special Interest ISAAC group in Operator Theory and Harmonic Analysis (OTHA group) continued its activity online.

It was organized a series of online lectures «OTHA online workshop 2020» on August 24-25 (<http://otha.sfedu.ru/online-workshops/otha-workshop/>).



On the photo – screen shot of participants

The OTHA online workshop program included lectures by invited speakers and poster presentations. Among lecturers were Anatoly Antonevich (Belarus), Alexander Bendikov (Poland), Vagif Guliev (Azerbaijan and Turkey), Luigi D'Onofrio (Italy), Yuri Gliklikh (Russia), Mark Malamud (Russia), Miodrag Matelevich (Serbia), Vladimir Rabinovich (Mexico), Alexander Skubachevsky (Russia). The number of workshop participants varied between 60 and 80. There were mathematicians from Russia, the USA, Mexico, Colombia, Israel, Poland, Italy, Portugal, Spain, Norway, Turkey, Armenia, Georgia, Azerbaijan, Belarus, Ukraine, India, Algeria, Morocco and other countries.

The online Seminar on Analysis, Differential Equations and Mathematical Physics are organizing regularly. Coordinators are members of the OTHA group: Alexey Karapetyants and Vladislav Kravchenko. Between 50-60 participants take part in each session of the seminar. Video lectures are available on the seminar website <https://rmc.sfedu.ru/seminars>.

In addition, each member of the OTHA group participates in other online activities as invited speaker. In particular, Vladislav Kravchenko delivered the talk on the 12th International Conference on Clifford Algebras and Their Applications in Mathematical Physics (3-7 August, 2020 Hefei, China), Alexey Karapetyants and Elina Shishkina spoke at the scientific seminar of the RUDN University of Mathematics on differential and functional-differential equations under the coordination of Professor A.L. Skubachevsky, and so on. Next week (October 21) Vladislav Kravchenko will present an online lecture at the Mexican Mathematical Society.

Besides, there are some other off-line activities of the OTHA group members: conferences, lectures, seminars. We expect to have offline event in December OTHA workshop Fall 2020 (<http://otha.sfedu.ru/online-workshops/otha-fall-2020/>) on operator theory and harmonic analysis and their applications. The program of the workshop will include several invited lectures and we also expect to have a few online talks. Finally, the preparation for the OTHA-2021 is on, see <http://otha.sfedu.ru/conf2021/>.



On the photo – screen shot of participants

Webinar:

Marcello D'Abbicco, Marcelo Rempel Ebert and Michael Reissig are organizing a webinar in the current semester.

This webinar is one of the current activities of the Special Interest Group PDE.

Every Tuesday at 12.15 p.m. central European time takes place a lecture on the topic ``*Critical exponent versus blow-up in evolution models*''.

An average of 25 scientists follow the presentations on recent results on the global (in time) existence of small data solutions and blow-up phenomena in evolution models. There are very stimulating discussions after the presentations. The technical organization of the seminar is carried out by Helena Ebert at the Department of Mathematics and Computer Science of University of Sao Paulo in Ribeirao Preto.

List of speakers (October 13 - December 15): M. D'Abbicco (Bari), W. Nunes do Nascimento (UFRGS), A. Palmieri (Bari), Y. Wakasugi (Hiroshima), V. Georgiev (Pisa), W. Chen (Jiao Tong Shanghai), E. Cilos Vargas Junior (UFSC), A. Tuan Dao (HUST Hanoi), K. Fujiwara (Tohoku), A. Fino (University of Lebanon).

For the organizers
Michael Reissig

New members

Rainer Picard

Born on July 20th 1946, Germany; Doctorate in Mathematics from the University of Bonn, Germany, in 1973 (Dr. rer. nat.); Habilitation at the University of Bonn, Germany, in 1982; Visiting Researcher at Strathclyde U, Glasgow, Scotland UK, 1980-1981 and at U Calgary, Alberta, Canada, in 1983 and 1985; Associate Professor at UWM, Milwaukee, Wisconsin, USA, 1986-1988; Full-Professor at UWM 1988-1993; Full-Professor at TU Dresden, Saxony, Germany, 1993-2011; retired from TU Dresden in 2011; Senior Professor at TU Dresden 2011-2019; Visiting Professor at Strathclyde U, Glasgow, Scotland, UK, since 2004.



Sascha Trostorff

2002 - 2008 Study of Mathematics with minor in Computer Science at the Technical University Dresden

2011 PhD in Mathematics at the Technical University Dresden

2018 Habilitation in Mathematics at the Technical University Dresden

from 2011 until 2019 scientific assistant at the institute for Mathematical Analysis, Technical University Dresden

since 2019 lecturer at the Mathematical Seminar, CAU Kiel



Serena Federico

Serena Federico earned her PhD. in Mathematics at the University of Bologna, Italy, in 2016. From March 2016 to May 2019 she was a postdoctoral fellow at the University of Bologna, Italy. On June 2019 she moved to the University of Ghent, Belgium, after obtaining a Marie Curie Fellowship.

During the last three years of her postdoctoral career she has made research visits at the Massachusetts Institute of Technology and at Imperial College London working on problems related to dispersive equations and coercive inequalities.

Her research interests include also solvability of PDEs, a priori estimates and pseudo-differential operators, both in the Euclidean and in the Lie group setting.



Tommaso Bruno

Tommaso Bruno is a postdoctoral fellow of the Research Foundation – Flanders (FWO) at Ghent University since November 2019. Previously, he was a postdoctoral researcher at Politecnico di Torino. He obtained his PhD in Mathematics in December 2017 from Università di Genova, under the supervision of Giancarlo Mauceri. His research interests concern harmonic and functional analysis on Riemannian and sub-Riemannian manifolds.



Up-coming conferences

International conference of Mathematical Methods in Physics, April 5-9, 2021, Marrakech, Morocco, <https://icmmp21.doodlekit.com/>

10th International conference "Inverse Problems: Modeling and Simulation", rescheduled May 16-21, 2021, Malta, <http://www.ipms-conference.org/ipms2020/>

13th International ISAAC Congress, Ghent University@Zoom, August 2-6, 2021.

Conference website: <https://cage.ugent.be/isaac2021/>

Second Announcement

The ISAAC board, the organizing committee, and the Department of Mathematics: Analysis, Logic and Discrete Mathematics at Ghent University are pleased to invite you to participate at the 13th International ISAAC Congress, to be held from August 2 to August 6, 2021. The conference will be organized as an online event via Zoom.

The 13th International ISAAC congress continues a long-standing and successful tradition of biannual meetings. The most recent editions of the conference series were held in Aveiro (Portugal, 2019), Växjö (Sweden, 2017), Macau (China, 2015), Krakow (Poland, 2013), Moscow (Russia, 2011), and London (UK, 2009)

If you need to contact the organizers, we kindly ask you to do it through the email address: isaac2021@ugent.be



13th ISAAC Congress

2-6 August 2021, Ghent University @ Zoom



Plenary Speakers

Maarten de Hoop (Rice University)
Stéphane Jaffard (UPEC)
Barbara Kaltenbacher (AAU Klagenfurt)
Arno Kuijlaars (KU Leuven)
Kristian Seip (NTNU)

Organizing Committee

Tommaso Bruno (UGent)
Andreas Debrouwere (UGent)
Gregory Debruyne (UGent)
Peter De Maesschalck (UHasselt)
Hans Vernaeye (UGent)
Jasson Vindas (UGent)

And we arrive to the end of this seasonal newsletter

In prevision of your New Year's Eve party we would like to provide you with the following lyrics of the general transfinite version of the classic "bottles of beer" song (garanted to annoy neighbours)

Aleph-n bottles of beer

Aleph-n bottles of beer on the wall,

aleph-n bottles of beer;

If, where $m < n$, aleph-m bottles should happen to fall,

aleph-n bottles of beer on the wall.

Aleph-n bottles of beer on the wall,

aleph-n bottles of beer;

If, where $m < n$, aleph-m bottles should happen to fall,

aleph-n bottles of beer on the wall.

(ad infinitum nauseam)



As a final remark, we would like to call your attention to the fake news of the day: unlike reported by media, Santa Claus cannot make his traditional trip not because of Covid-19 but due to global warming.

Enjoy the season