



Brief History of the Conferences

“INVERSE PROBLEMS: MODELING & SIMULATION”

May 22 - 28, 2022, Malta

(Commemorating the 10th IPMS conference)

THE EURASIAN ASSOCIATION ON INVERSE PROBLEMS

(<https://www.eurasianip.org/>)

the main sponsor of the conferences

INVERSE PROBLEMS: MODELING & SIMULATION

Saturday, 14 December 2019



THE EURASIAN ASSOCIATION
ON INVERSE PROBLEMS

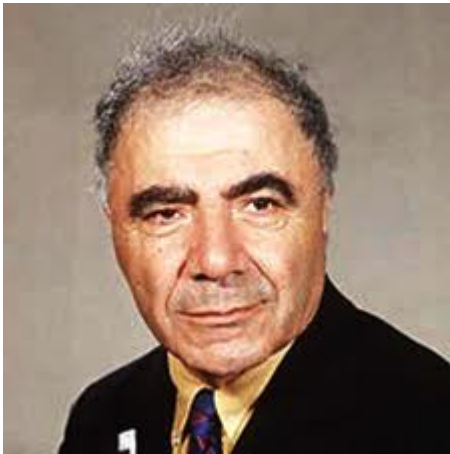


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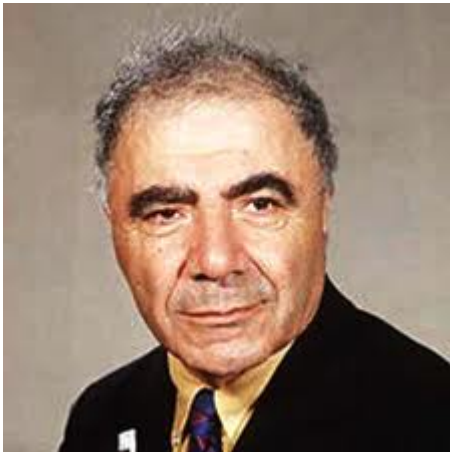
THE EURASIAN ASSOCIATION ON INVERSE PROBLEMS (EAIP)



EAIP Award



PRELUDE I While still a student (of Leningrad State University) **Viktor Hambardzumyan**, who was born to an Armenian family in Tbilisi in 1908, was very much interested in quantum physics, and thoroughly studied the theory of atomic structure, the formation of energy levels, and Schroedinger's equation and its properties. As a result, when he mastered the theory of eigenvalues of differential equations. Specifically, **he pointed out the apparent analogy between discrete energy levels and the eigenvalues of differential equations. He then asked: given a family of eigenvalues, is it possible to find the form of the equations whose eigenvalues they are?** Essentially Hambardzumyan was examining **the inverse Sturm-Liouville problem**, which dealt with determining the equations of a vibrating string. This paper was published in 1929 in the German physics journal *Zeitschrift für Physik* and remained in oblivion for a rather long time.



PRELUDE II Describing this situation after many decades, Hambardzumyan said, "If an **astronomer** publishes an article with **mathematical** content in a **physics** journal, then the most likely thing that will happen to it is oblivion." Thus, an article by the 20-year-old Hambardzumyan opened up a whole **area of research on inverse problems and became the foundation of an entire discipline.** Interestingly, when Hambardzumyan summarized the types of research results from his long scientific career, he always placed "inverse problems" in a special group of his most beloved creations.

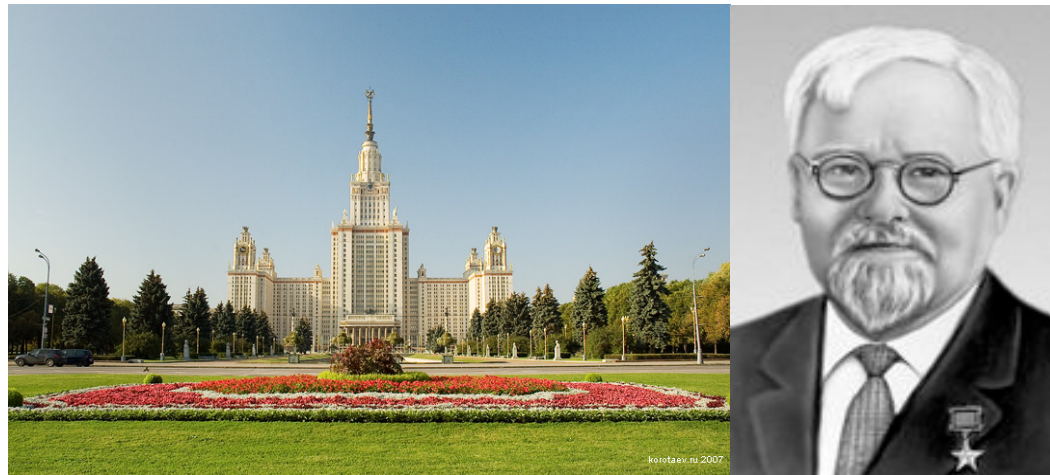


Jacques Salomon Hadamard

The concept of a well-posed problem is due to J. Hadamard

(1923), who believed that every mathematical problem corresponding to some physical or technological problem must be well-posed. In fact, what physical interpretation can a solution have if an arbitrarily small change in the data can lead to large changes in the solution? Moreover, it would be difficult to apply approximation methods to such problems. This put the expediency of studying ill-posed problems in doubt.

The prominent role of **Andrey Nikolaevich Tikhonov** from abstract topology to modern technology, including **inverse and ill-posed problems** is well known. He played also a leading role in the founding of our Faculty of Computational Mathematics and Cybernetics at Moscow State University and served as its first dean, from 1970 to 1990.



Andrey Nikolaevich Tikhonov made important contributions not only to topology, functional analysis, mathematical physics, and certain classes of ill-posed problems. **Tikhonov regularization**, one of the most widely used methods to solve ill-posed inverse problems, is named in his honour.

The principles of the IPMS conferences had been formulated in 2001 by the great scientist and founder of the theory of seismic waveform inversion, Albert Tarantola. In the terminology of Albert Tarantola, these principles can be summarized as follows:

- 1) *The Conference must be held in such a place that the participants will be able to discuss inverse problems by drinking wine on the seashore;*
- 2) *The goal function of the conference must be friendship, collaboration and support of young scientists.*

Based on these principles, John R. Cannon, Alemdar Hasanov, Zuhair Nashed, Albert Tarantola, Alex Tolstoy and Fadil Santosa, have begun to prepare for the first IPMS.

Very nice traditions have been formed in these 18 years:

- *friendship, collaboration and support of young scientists;*
- *celebrating the anniversaries of outstanding colleagues;*
- *rewarding young colleagues "EAIP Young Scientist Award" established by The Eurasian Association on Inverse Problems (EAIP) to encourage them;*
- *rewarding distinguished colleagues "EAIP Award" to recognize their outstanding scientific contributions to the field of inverse problems and continuous efforts to foster cooperation between researchers of Eurasian countries.*

Alemdar Hasanov, Albert Tarantola and Alex Tolstoy were the first initiators and organizers of the **First International Conference "Inverse Problems: Modeling and Simulation"**



SPONSORS: Fethiye Municipality, Office of Naval Research International Field Naval Undersea Warfare Center (USA), Danish Interdisciplinary Inversion Group (DIIG)



The First International Conference
"Inverse Problems: Modeling and Simulation"
July 14-21, 2002, Fethiye, Turkey

HONORARY CHAIRS:

John R. Cannon, University of Central Florida, USA

Albert Tarantola, Institute de Physique du Globe, FRANCE

CHAIRS:

Alemдар Hasanov Hasanoglu, Kocaeli University, TURKEY

Fadil Santosa, University of Minnesota, USA

Alex Tolstoy, ATolstoy Scientific Inc., USA

INTERNATIONAL PROGRAMME COMMITTEE:

Sergei Kabanikhin (Russia), Jim Berryman (USA), Ding Lee (USA), Dave Bradley (USA), Klaus Mosegaard (Denmark), Mike Buckingham (USA), Zuhair Nashed (USA), Guy Chavent (France), Aleksei Prilepko (Russia), Paul DuChateau (USA), Pierre Sabatier (France), Bob Spindel (USA)

**The Second International Conference
"Inverse Problems: Modeling and Simulation"**

July 07-12, 2004, Fethiye, Turkey

CHAIRS

Heinz W. Engl (Radon Inst. Comput. Appl. Math., Austria)

Alemdar Hasanov Hasanoglu (Kocaeli University, Turkey)

Sergey Kabanikhin (Sobolev Inst. of Mathematics, Russia)

INTERNATIONAL PROGRAM COMMITTEE

H.T.Banks (USA), M. Burger (USA), G. Chavent (France), A.M. Denisov (Russia), G. S. Dulikravich (USA), S. He (Sweden), M.V. de Hoop (USA), A. Iserles (UK), V. Isakov (USA), Y. Kagawa (Japan), R. Kress (Germany), M.M. Lavrentiev (Russia), A. Louis (Germany), A. Lorenzi (Italy), J. McLaughlin (USA), G. Nakamura (Japan), M. Pidcock (UK), V.G. Romanov (Russia), P.C. Sabatier (France), O. Scherzer (Austria), E. Somersalo (Finland), Li Ta-Tsien (China), G. Uhlmann (USA), V.V. Vasin (Russia)

SPONSORS: International journals: **Inverse Problems**, **Journal of Inverse and Ill-Posed Problems**, **Inverse Problems in Engineering**, **Scientific and Technological Research Council of Turkey (TUBITAK)**

Participants of The Second International Conference "Inverse Problems: Modeling and Simulation"

July 10, 2004, Fethiye, Turkey



**The Third International Conference
Inverse Problems: Modeling and Simulation (IPMS 2006)**

May 29-June 02, 2006, Ölüdeniz-Fethiye, Turkey

CHAIRS

Banks H.T. (N.C. State University, USA)

Hasanov Hasanoglu A. (Appl. Mathematical Sciences Research Center, Turkey)

Kabanikhin S. (Sobolev Institute of Mathematics, Russia)

Kunisch K. (University of Graz, Austria)

INTERNATIONAL PROGRAM COMMITTEE

Alessandrini G. (Italy), Bozdogan H. (USA), Burns J. A. (USA), DuChateau P. (USA), Dulikravich G. S. (USA), Groetsch C. (USA), Hofmann B. (Germany), de Hoop M.V. (USA), Ito K. (USA), Kojima F. (Japan), Lamm P. K. (USA), McLaughlin J. (USA), Lavrent'ev M.M. (Russia), Neubauer A. (Austria), Romanov V.G.(Russia), Scherzer O. (Austria), Vasin V.V. (Russia), Yamamoto M. (Japan), Zirilli F. (Italy), Zou J.(China)

SPONSORS:

Oludeniz Municipality, International journals: **Inverse Problems**, **Journal of Inverse and Ill-Posed Problems**, **Inverse Problems in Engineering**, Scientific and Technological Research Council of Turkey (TUBITAK)

Committee meeting: the conference IPMS 2006



**Publisher of the journal Inverse Problems E. Longden-Chapman
with S. Kabanikhin, H.T. Banks during the conference IPMS 2006**



**The Fourth International Conference
"Inverse Problems: Modeling and Simulation" (IPMS 2008)**

May 26 - 30, 2008, Oludeniz - Fethiye, TURKEY

CHAIRS

H. T. Banks (N.C.State Univ., USA)

A. Hasanov Hasanoglu (Kocaeli University, Turkey)

S. Kabanikhin (Sobolev Institute of Mathematics, Novosibirsk, Russia)

K. Kappel (University of Graz, Austria)

INTERNATIONAL PROGRAM COMMITTEE

Alessandrini G.(Italy), Bonnet M. (France), Bozdogan H.(USA), Burns J. A.(USA), Cheng J. (China), DuChateau P.(USA), de Hoop M.V. (USA), Kojima F. (Japan), Lesnic D. (UK), Mannseth T. (Norway), Neubauer A. (Austria), Romanov V.G.(Russia), Uhlmann G. (USA), Vasin V.V. (Russia), Yagola A.G. (Russia), Zirilli F. (Italy), Zou J. (China)

SPONSORS: Oludeniz Municipality, International journals: **Inverse Problems**, **Journal of Inverse and Ill-Posed Problems**, **Inverse Problems in Engineering**, Scientific and Technological Research Council of Turkey (TUBITAK), International Association formed by the European Community, for the Promotion of Co-operation with Scientists from the New Independent States of the Former Soviet Union (INTAS)

Young Scientist Award Ceremony

The Fourth International Conference IPMS 2008



Award winners:

Dr Maria Rapun

Universidad Politecnica
de Madrid, Spain

Dr Arzu Erdem

Kocaeli University,
Turkey

Dr Maksim Shishlenin,

Sobolev Institute of
Mathematics, Russia

The Fifth International Conference
"Inverse Problems: Modeling and Simulation" (IPMS 2010)

May 24-29, 2010, Lykia World Antalya hotel, Antalya – Turkey

CHAIR

A. Hasanov Hasanoglu, Izmir University, Turkey

CO-CHAIRS

G.S. Dulikravich, Florida International University, USA

B. Hofmann, Chemnitz University of Technology, Germany

S. I. Kabanikhin, Sobolev Institute of Mathematics, Russia

INTERNATIONAL PROGRAM COMMITTEE

V. Agoshkov (Russia), H.T. Banks (USA), J. A. Burns (USA), D. Cioranescu (France)

A.J. Kassab (USA), M. Klibanov (USA), F. Kojima (Japan), D. Lesnic (Leeds, UK),

J. McLaughlin (USA), A. Neubauer (Austria), H.R.B. Orlande (Brazil), S. V. Pereverzyev

(Austria), O. Scherzer (Austria), M. Slodicka (Belgium), G. Uhlmann (USA), V.V. Vasin,

(Russia), Y.-F. Wang (China), A. Yagola (Russia), X.S. Yang (UK), F. Zirilli (Italy)

SPONSORS: Izmir University, International journals **Inverse Problems**, **Journal of Inverse and Ill-Posed Problems**, **Inverse Problems in Engineering**, International Society for Inverse Problems in Science and Engineering (ISIPSE)

Participants of The Fifth International Conference "Inverse Problems: Modeling and Simulation" (IPMS 2010)



The Sixth International Conference
"Inverse Problems: Modeling and Simulation" (IPMS 2012)
May 21-26, 2012, Lykia World & Links Golf Antalya hotel, Antalya – Turkey

CHAIR

A. Hasanov Hasanoglu, Izmir University, Turkey

CO-CHAIRS

G.S. Dulikravich, Florida International University, USA

S. Kabanikhin, Sobolev Institute of Mathematics, Russia

A. Neubauer, University of Linz, Austria

D. Lesnic, University of Leeds, UK

INTERNATIONAL PROGRAM COMMITTEE

H.T. Banks (USA), D. Gintides (Greece), A. Grünbaum (USA), B. Hofmann (Germany),

M. Klibanov (USA), P. Maass (Germany), J. McLaughlin (USA), M. Z. Nashed (USA),

B. Nilsson (Sweden), M. Otelbaev (Kazakhstan), O. Scherzer (Austria)

SPONSORS: Izmir University, International journals: **Inverse Problems**,
Journal of Inverse and Ill-Posed Problems, **Inverse Problems in Engineering**, **Izmir University**

Participants of The Sixth International Conference "Inverse Problems: Modeling and Simulation" (IPMS 2012)



The Seventh International Conference
"Inverse Problems: Modeling and Simulation" (IPMS 2014)

May 26-31, 2014, Liberty Hotels, Lykia, Ölüdeniz, Fethiye – Turkey

CHAIR

Alemdar Hasanov Hasanoglu, Izmir University, Turkey

CO-CHAIRS

H. Thomas Banks, North Carolina State University, USA

Sergey I. Kabanikhin, Institute of Comput. Mathematics and Mathematical Geophysics, Russia

Daniel Lesnic, University of Leeds, UK

Alfred K. Louis, Universität des Saarlandes, Germany

INTERNATIONAL PROGRAM COMMITTEE

George S. Dulikravich(USA), Abdellatif El Badia (France), Drossos Gintides (Greece),
Dinh Nho Hào (Vietnam), Uno Hämarik (Estonia), Bernd Hofmann (Germany), Victor Isakov (USA),
Akhtar A. Khan (USA), Peter Maass (Germany), M. Zuhair Nashed (USA), Andreas Neubauer (Austria),
Börje Nilsson (Sweden), Muhtarbay Otelbaev (Kazakhstan), Lassi Päiväranta (Finland), Eric Todd Quinto
(USA), Vladimir G. Romanov (Russia), Otmar Scherzer (Austria), Marian Slodicka (Belgium), Vladimir
Vasin (Russia), Anatoly Yagola (Russia), Francesco Zirilli (Italy)

SPONSORS: Eurasian Association on Inverse Problems (EAIP), Scientific and Technological Research
Council of Turkey (TUBITAK), International journals: **Inverse Problems**, **Journal of Inverse and Ill-Posed
Problems**, **Inverse Problems in Engineering**

Participants of The Seventh International Conference IPMS2014



EAIP Award Ceremony: The Seventh International Conference IPMS 2014



Award winners: Prof. Dr **Bernd Hofmann**, TU Chemnitz , Germany
Prof. Dr **Vladimir Vasin**, Institute of Mathematics and Mechanics, Russia

The Eighth International Conference
"Inverse Problems: Modeling and Simulation" (IPMS 2016)

May 23-28, 2016, Liberty Hotels, Lykia, Ölüdeniz, Fethiye – Turkey

CHAIR

A. Hasanov Hasanoglu, Izmir University, Turkey

CO-CHAIRS

Sergey I. Kabanikhin, Institute of Computational Mathematics and Mathematical Geophysics, Russia

Andreas Neubauer, University of Linz, Austria

Roman Novikov, Ecole Polytechnique, France

INTERNATIONAL PROGRAM COMMITTEE

Simon Arridge (UK), George S. Dulikravich(USA), Abdellatif El Badia (France), Alberto Grünbaum (USA), Xu Han, Hunan (China), Dinh Nho Hào (Vietnam), Uno Hämarik (Estonia), Bernd Hofmann (Germany), Thorsten Hohage (Germany), Akhtar A. Khan (USA), Daniel Lesnic (UK), Alfred K. Louis (Germany), Eric Todd Quinto (USA), Vladimir G. Romanov (Russia), Cristiana Sebu (UK), Cristiana Sebu (UK), Jin Keun Seo (Korea), Otmar Scherzer (Austria), Marian Slodicka (Belgium), Trong T. Truong (France), Ricardo Weder (Mexico), Anatoly Yagola (Russia), Francesco Zirilli (Italy)

SPONSORS:

Eurasian Association on Inverse Problems, Scientific and Technological Research Council of Turkey (TUBITAK), International journals **Inverse Problems**, **Journal of Inverse and Ill-Posed Problems**, **Inverse Problems in Engineering**

EAIP Young Scientist Award Ceremony

The Eighth International Conference IPMS 2016



Award winners: **Dr Karel Van Bockstal**, Ghent University, Belgium
Dr Alexandre Jollivet, Lille 1 University, France

The EAIP Award Ceremony: The Eighth International Conference IPMS 2016



Award winners: Prof. Dr **Jan Boman**, Stockholm University, Sweden
Prof. Dr **Sergey I. Kabanikhin**, Sobolev Institute of Mathematics, Russia

Banquet during The Eighth International Conference IPMS 2016



**The Ninth International Conference
"Inverse Problems: Modeling and Simulation" (IPMS 2018)**

May 21-25, 2018, Paradise Bay Hotel, Malta

CHAIR

Alemdar Hasanov Hasanoglu (Turkey)

CO-CHAIRS

Roman Novikov (France)

Eric Todd Quinto (USA)

Otmar Scherzer (Austria)

INTERNATIONAL PROGRAM COMMITTEE

Simon Arridge (UK), George S. Dulikravich (USA), Drossos Gintides (Greece), Bernd Hofmann (Germany), Thorsten Hohage (Germany), Sergey I. Kabanikhin (Russia), Daniel Lesnic (UK), Gen Nakamura (Japan), Andreas Neubauer (Austria), Vladimir G. Romanov (Russia), Cristiana Sebu (UK), Marian Slodicka (Belgium), Trong T. Truong (France),

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Opening Ceremony-1: The Ninth International Conference IPMS 2018



Opening Ceremony-2: The Ninth International Conference IPMS 2018



The EAIP Young Scientist Award Ceremony **The Ninth International Conference IPMS 2018**



Award winner: Prof. Dr **Bernadette Hahn**, University of Würzburg, Germany

The EAIP Young Scientist Award Ceremony **Ninth International Conference IPMS 2018**



Award Winners: **Dr Giovanni S. Alberti**, University of Genoa, Italy
Dr Andrei Shurup, Lomonosov Moscow State University, Russia

The EAIP Award Ceremony **The Ninth International Conference IPMS 2018**



Award winner: Prof. Dr **Vladimir G. Romanov**, Sobolev Institute of Mathematics, Russia

The EAIP Award Ceremony

The Ninth International Conference IPMS 2018



Award winner: Prof. Dr **Otmar Scherzer**, University of Vienna, Austria

The Tenth International Conference
"Inverse Problems: Modeling and Simulation" (IPMS 2020)
May 22-28, 2022, Paradise Bay Hotel, Malta

CHAIR

Alemdar Hasanov Hasanoglu (Turkey)

CO-CHAIRS

Roman Novikov (France), Eric Todd Quinto (USA),
Otmar Scherzer (Austria), Cristiana Sebu (Malta)

INTERNATIONAL PROGRAM COMMITTEE

Giovanni S. Alberti (Italy), Simon Arridge (UK), Laurent Baratchart (France), George S. Dulikravich (USA), Thorsten Hohage (Germany), Hiromichi Itou (Japan), Sergey I. Kabanikhin (Russia), Daniel Lesnic (UK), Andreas Neubauer (Austria), Thomas Schuster (Germany), Shuhua Zhang (China)

International Organizing Committee:

Onur Baysal (Turkey); Karel Van Bockstal (Belgium); Alexandre Kawano (Brazil); Yanica Said (Malta);
Cristiana Sebu, Malta (Chair)

SPONSORS: The Eurasian Association on Inverse Problems,

International journals: **Inverse Problems**, **Journal of Inverse and Ill-Posed Problems**, **Inverse Problems in Engineering**

Opening Ceremony-1: The Tenth International Conference IPMS 2022



Opening Ceremony-2: The Tenth International Conference IPMS 2022



The EAIP Award Ceremony

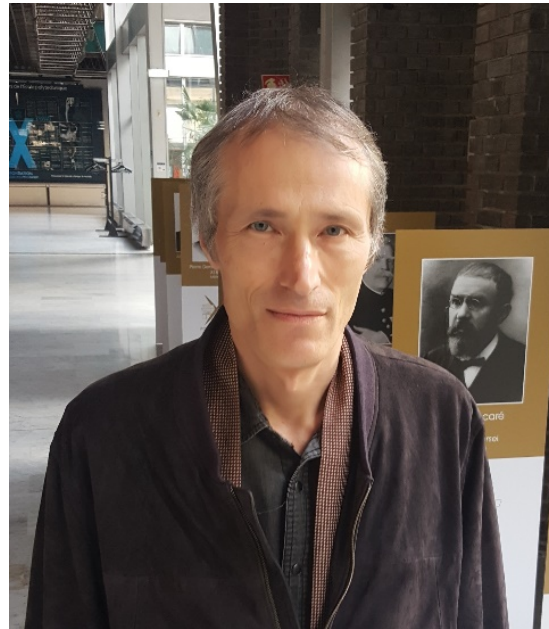
The Tenth International Conference IPMS 2022



2020 - 2022 EAIP Award Winners



Prof. Dr **Andreas Kirsch**
Germany



Prof. Dr **Roman Novikov**
France



Prof. Dr **Masahiro Yamamoto**
Japan

Presentation of the 2020 – 2022 EAIP Young Scientist Award Winners



2020 – 2022 EAIP Young Scientist Award Ceremony

Ninth International Conference IPMS 2022



Award Winners: Dr Peter Elbau, University of Vienna, Austria
Dr Joonas Ilmavirta, University of Jyväskylä, Finland
Dr Simon Hubmer, RICAM, Austrian Academy of Sciences, Austria

*We look forward
to welcome you to the next IPMS conferences!*





