

**5th International Symposium on
Inverse Problems, Design and Optimization
(IPDO2019)**

<http://ipdo2019.ipdos.org/>

September 24-26, 2019, Tianjin, China



TIME AND PLACE

The symposium will be held during **September 24-26, 2019** in Holiday Inn Riverside, Tianjin, China.

AIM

IPDO sequence of international symposia's main objective is to bring three communities of researchers in the fields of inverse problems, multidisciplinary design theory and optimization together in a unique international forum that provides an excellent basis for cross-fertilization of ideas, as well as for the creation of new synergistic approaches and methodologies.

TOPICS

The IPDO 2019 Symposium will emphasize a broad range of deterministic, statistical, analytical, computational and experimental approaches, which can be applied to the solution of inverse, design and multi-disciplinary optimization problems. Contributions dealing with practical applications are encouraged, such as in mechanics, vehicle engineering, civil engineering, aeronautics, microelectronics, bio-medicine, imaging, transport and sensing of pollutants, materials design and processing, remote sensing, non-destructive evaluation, acceleration of single-objective and multi-objective optimization, uncertainty quantification, meta-models for high-dimensional problems, unsupervised deep learning algorithms, etc.

The topics listed below give a general guideline:

- **Inverse Problems** in: Mechanics, Aeronautics, Vehicle engineering, Civil engineering, Material science, Damage detection, Fault diagnosis, Imaging, Bio-medicine, Acoustics, Heat and mass transfer, Imaging, Electromagnetism, Geophysics, Remote sensing, Underground prospecting, Transport and sensing of pollutants, Nondestructive evaluation, Learning theory.

- **Numerical Algorithms:** Ill-posedness analysis and Regularization techniques, Semi-inverse problems and methods, Large-scaled inverse problems, Sensitivity analysis, Evolutionary algorithms, Geometric problems, Determination of boundary and initial conditions, Dynamic load identification, Model verification and validation (V&V).

- **Uncertain Quantification:** Statistical and probabilistic methods, Bayesian inverse problems, Non-probabilistic uncertain inverse methods, Uncertainty quantification, Inverse problems with uncertain models, Inverse uncertainty propagation.

- **Multidisciplinary Design and Optimization:** Design sensitivity analysis and global optimization, Shape and topology optimization, Multidisciplinary and multi-objective optimization, Design under uncertainty, Meta-models for high-dimensional problems.

- **Data-driven based algorithms:** Data analysis, Signal and noise processing, Pattern recognition, Identification based on machine learning, Unsupervised deep learning algorithms, Data assimilation methods, Inverse methods based on Kalman filter.

ABSTRACTS AND PAPERS

Authors should submit their two-page abstract or full paper (optional) electronically, in Word or PDF or Latex format, as an attachment to an e-mail message to the address: IPDO2019@hebut.edu.cn.

Detailed instructions on preparations of the abstracts and full papers are given on the conference website: <http://ipdo2019.ipdos.org/>.

All submitted abstracts or papers will be reviewed by the experts of the program committee and accepted according to their order of submission and relevance to overall conference objectives. Decision on the presentation will be sent to the authors by e-mail.

All accepted abstracts or papers will be in a Book of Abstracts before the conference. All participants will get copies during IPDO2019.

Selected full papers will be published in the journals of "Inverse Problems in Science and Engineering" or "International Journal of Computational Methods" after an additional review.

MINISYMPOSIA ORGANIZATIONS (MS)

The MS proposals are encouraged to address any timely and coherent developments in all aspects of inverse problems, design and optimization.

The contents should include: (1) title of MS, (2) description of MS, (3) detailed contact information of MS organizer(s) such as name,

affiliation, e-mail address, etc..

Deadline for submission of MS proposals is **February 28, 2019**. MS proposals should be submitted by sending a message to the e-mail address: IPDO2019@hebut.edu.cn.

As the lead organizer of an MS having at least one session with six accepted papers and their authors presenting them, he will be entitled to a free registration for IPDO2019. For more information, please do not hesitate to contact us. We thank you in advance for your interest and participation in the preparations for IPDO2019.

CHAIRS

General Chair

Prof. Xu Han

Hebei University of Technology, Tianjin, China

E-mail: xhan@hebut.edu.cn

Honorary Co-Chairs

Prof. George S. Dulikravich

Florida International University, USA

Prof. Helcio R. B. Orlande and Marcelo J. Colaco

Federal University of Rio de Janeiro, Brazil

INTERNATIONAL ORGANIZING COMMITTEE

Alifanov, O. (Russia), Bonett, M. (France), Cheng, G.D. (China),

Cheng, J. (China), Coello Coello, C.A. (Mexico),

Duan, B.Y. (China), Egorov, I.N. (Russia), Elishakoff I. (USA),

Friswell, M. (UK), Ghattas, O. (USA), Hao, D.N. (Vietnam),

Hasanoglu, A. (Turkey), Klivanov, M. (USA), Lesnic, D. (UK),

Liu, G.R. (USA), Marin, L. (Romania), Natterer, F. (Germany),

Pothast, R. (Germany), Ostrowski, Z. (Poland),

Romanov, V.G. (Russia), Sebu, C. (Malta), Silva Neto, A. (Brazil),

Slodicka, M. (Belgium), Watzenig, D. (Austria),

Yagola, A.G. (Russia), Yuan, Y.X. (China).

PLENARY SPEAKERS

H. Thomas Banks (USA)

Gengdong Cheng (China)

Kalyanmoy Deb (USA)

Jari Kaipio (New Zealand)

KEYNOTE SPEAKERS

Anatoly G. Yagola (Russia)

Isaac Elishakoff (USA)

Igor N. Egorov (Russia)

Daniel Lesnic (UK)

Gyung-Jin Park (South Korea)

Yanfei Wang (China)

IMPORTANT DATES

Submission of mini-symposium proposals: February 28, 2019

Two-page abstract due: March 31, 2019

Abstract acceptance: April 23, 2019

Full paper (optional) due: June 15, 2019

Early registration: July 15 - August 24, 2019

PREVIOUS CONGRESSES ON INVERSE PROBLEMS, DESIGN AND OPTIMIZATION

Rio de Janeiro, Brazil (2004): <http://ipdo2004.ipdos.org/>

Miami Beach, USA (2007): <http://ipdo2007.ipdos.org/>

Joao Pessoa, Brazil (2010): <http://ipdo2010.ipdos.org/>

Albi, France (2013): <http://ipdo2013.congres-scientifique.com/>

CORRESPONDENCE

Associate Professor, Dr. Jie Liu

Secretariat of IPDO 2019

College of Mechanical & Vehicle Engineering, Hunan University

E-mail: IPDO2019@hebut.edu.cn

liujie@hnu.edu.cn

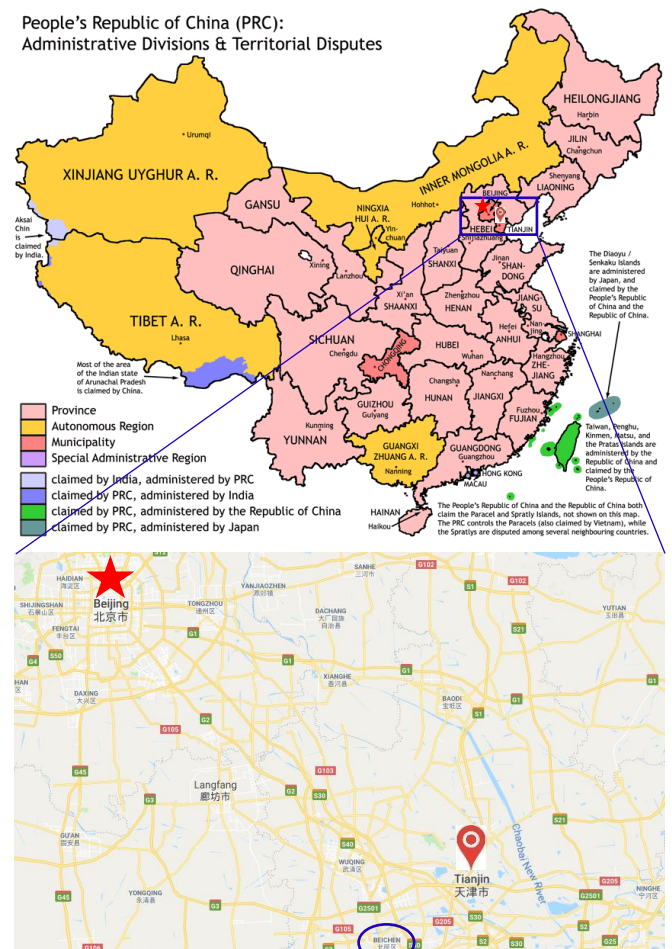
Professor, Dr. Yourui Tao

School of Mechanical Engineering, Hebei University of Technology

E-mail: taoyourui@hebut.edu.cn

WHERE IS TIANJIN

People's Republic of China (PRC):
Administrative Divisions & Territorial Disputes



The distance between Tianjin and Beijing is about 150 km. It is very convenient for people to travel from Beijing to Tianjin by taking high-speed trains (About 30 minutes).

For more information about Tianjin and Hebei University of Technology, please visit respectively:

<https://en.wikipedia.org/wiki/Tianjin>

<http://eweb.hebut.edu.cn/>