

# IPM 2013

Rzeszów - Baranów Sandomierski, Poland  
24-27 April 2013

## 3<sup>rd</sup> International Conference on Inverse Problems in Mechanics of Structures and Materials

<http://ipm.prz.edu.pl>



### Important Dates

Submission of a two page abstract	31 January 2013
Acceptance of the paper	15 February 2013
Early payment	28 February 2013
Final announcement	29 March 2013
Beginning of the Conference	24 April 2013

### Registration Fees

Early and late registration fees are:

	Early	Late
Delegates	350	400
Students	175	200
Accompanying persons	150	175

The registration fee will cover: a book of abstracts, participation in all scientific sessions, lunches, coffee breaks, conference dinners and planned tourist attractions.

### Accommodation

Block reservation at preference rates will be arranged by the organizers in the Castle as well as in the three-star Castle Hotel. Detailed information will be available on the Conference site.

A shuttle communication will be organized between Baranów Sandomierski and railway station in Rzeszów as well as with Rzeszów International Airport.

### Social Programme

A social programme for delegates and accompanying persons will be arranged. Half-day and longer excursions will be proposed and their list will be also available on the Conference site.

### Organizing Committee

Z. Waszczyszyn - Chairman  
L. Ziemiański - Co-Chairman  
P. Nazarko - Secretary

### Conference Secretariat

Department of Structural Mechanics  
Rzeszów University of Technology  
Powstańców Warszawy 2, 35-959 Rzeszów, Poland

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### Supporting Organizations

Polish Association for Computational Mechanics  
Department of Technical Sciences, Polish Academy of Sciences  
Rzeszów University of Technology



Thematic Conference

ECCOMAS:  
European Community  
on Computational Methods  
in Applied Sciences

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## Objectives

Inverse Problems in Mechanics (IPM) are related to the analysis of excitations for known responses of the Mechanical System (MS) and/or searching the structure of MS and its parameters. IPM can be ill posed or ill conditioned so they need regularization and various optimization techniques to eliminate non-uniqueness of solutions and instabilities of algorithms.

The Inverse Mechanics (IM) attracts attention mainly because of its close relations to many design problems. IM opens the door to the assessment of real structures and materials. Inverse problems are difficult for modelling and analysis since they need the application of advanced hard and soft computational methods supported on various experimental techniques. Multiscale modelling and homogenization methods have to be completed by efficient parametric identification and data banks with results of measurements on laboratory models or real structures. IM is commonly used to detection of damage, health monitoring and durability prediction of not only structures but also other systems, e.g. related to biomechanical problems of materials and structures.

The 3<sup>rd</sup> ECCOMAS Thematic Conference IPM 2013 is a continuation of the IPM Symposiums held in 2009 and 2011. The main objectives of the Conference IPM 2013 are to get together scientists, engineers and researchers working in various fields of inverse mechanics to make a forum for information exchange and discussion of new research and applications in engineering. The organizers will try attract also PhD students and young researchers.

## Conference topics

- Advanced mathematical methods for modelling and analysis of Inverse Problems in Mechanics (IPM)
- Intelligent computing (machine learning and especially neural networks, fuzzy sets, evolutionary methods and strategies, immunological systems)
- Advanced mathematical methods for modelling and analysis of Inverse Problems in Mechanics (IPM)
- Damage detection and health monitoring in structures and materials of civil and mechanical engineering
- Advanced methods for material and structure parameter identification and calibration
- Probabilistic identification and Bayesian inference in IPM, Kalman filter methodology
- Sensitivity analysis in IPM of biomechanical systems
- Topology and shape parameter identification, computational tomography, relation to optimal design for unspecified topology and boundary shape
- Hybrid systems in updating of computational models

## Symposium Chairman

- T. Burczyński** Silesian University of Technology and Cracow University of Technology, Poland  
**Z. Mróz** Institute of Fundamental Technological Research of the Polish Academy of Sciences, Warsaw, Poland  
**Z. Waszczyszyn** Rzeszów University of Technology, Poland

## Scientific Secretary

- P. Nazarko Rzeszów University of Technology, Poland

## Scientific Advisory Board

- |                       |                         |
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## An ECCOMAS Thematic Conference

IPM 2013 is one of the Thematic Conferences of ECCOMAS. For further information visit: [www.eccomas.org](http://www.eccomas.org)

## Submission of abstracts and publication of papers

Authors are invited to submit electronically two-page abstracts of their contributions using forms from the Conference web site. A number of presented papers will be selected by the members of the Scientific Advisory Board and chairmen of Conference sessions for publishing in special issues of two international scientific journals.

## Venue

The Conference IPM 2013 will be held in Rzeszów and Baranów Sandomierski. Rzeszów is an economic, scientific and cultural centre of the southeastern Poland. Rzeszów is in the middle what



is used to be the Central Industrial District (COP in Polish). It has been after Poland's resurrection after 1918 and still is a symbol of Polish successful effort to be a truly independent European country. The Rzeszów University of Technology continues the tradition. Besides an excellent Department of Mechanical and Aircraft Engineering, a unique centre for the education and training of civil aviation pilots is well known in Poland and abroad.

All lectures of the IPM 2013 will be held in the Castle Baranów Sandomierski which is one of the most precious monuments of Renaissance architecture in Poland. Baranów lies on the central section of the River Vistula, between Rzeszów (70 km) and Sandomierz (30 km). This region is a cultural interior of Poland, full of historical and tourist places of interest. The Castle together with the adjacent Hotel are surrounded by fourteen hectares of parkland and is charmingly set in the landscape of the Vistula plains. More information about the venue as well as local tourist attractions can be found on the conference website.

