

# NUMERICAL METHODS FOR SHAPE AND TOPOLOGY OPTIMIZATION IN ELASTICITY

Shape Gradients and Topological Derivatives • Level-Set  
Methods • Gradient Flows

## FORMAT

3 invited lectures + panel discussion

## TARGET AUDIENCE

Researchers and advanced PhD students in  
elasticity, PDE-constrained optimization, and  
computational mechanics

## LANGUAGE

English

## LECTURE 1

**Prof. Jan Sokolowski**  
**Gradient Flows for Shape Optimization in  
Elasticity**

Department of Modeling and Optimization of Dynamic  
Systems, Systems Research Institute, Polish Academy of  
Sciences (IBS PAN), Newelska 6, 01-447 Warsaw,  
Poland. Email: Jan.Sokolowski@ibspan.waw.pl

## LECTURE 2

**Dr Meizhi Qian**  
**The Turnpike Phenomenon in Conservative  
Systems**

Chair for Dynamics, Control, Machine Learning and  
Numerics (DCN-AvH), Department of Mathematics,  
Friedrich-Alexander-Universität Erlangen-Nürnberg  
(FAU), Cauerstr. 11, 91058 Erlangen, Germany. Email:  
Meizhi.Qian@fau.de

## LECTURE 3

**Dr Yixin Tan**  
**Level-Set Method for Shape and Topology  
Optimization**

Department of Modeling and Optimization of Dynamic  
Systems, Systems Research Institute, Polish Academy of  
Sciences (IBS PAN), Newelska 6, 01-447 Warsaw,  
Poland. Email: Yixin.Tan@ibspan.waw.pl

Meeting of the Optimization Section  
Committee on Mechanics,  
Polish Academy of Sciences  
27 February 2026, 08:55-11:15

