

# June 8 - 12, 2015

Workshop

## Low-rank Optimization and Applications

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**Organizers:** Pierre-Antoine Absil, Daniel Kressner, André Uschmajew

**Location:** Mathematik-Zentrum, Lipschitz Lecture Hall, Endenicher Allee 60, Bonn

The problem of how to tackle problems of “high dimensionality” has become a research field of major importance in applied mathematics, statistics, signal processing, machine learning, complexity theory, and other areas. To a large extent this development is stimulated by the rapidly growing capacities of modern computers to collect and process data. One similarity between different communities are model reducing assumptions that involve notions of low-rank, sparsity, or other kinds of separability. They lead to deep theoretical questions at the intersection of geometry and approximation theory, require novel optimization methods, and pose challenging tasks on the level of implementation.

The topic of this workshop is low-rank approximation techniques with an emphasis on tensors, optimization theory, and applications in data processing and scientific computing. The goal is to foster collaboration and exchange knowledge from the different areas.

### Invited speakers:

Markus Bachmayr  
Nicolas Boumal  
Jonas Ballani  
Andrzej Cichocki  
Inderjit Dhillon  
Maryam Fazel  
Nicolas Gillis

Lars Grasedyck  
Wolfgang Hackbusch  
Joseph Landsberg  
Lieven De Lathauwer  
Lek-Heng Lim  
Ivan Markovsky  
Yuji Nakatsukasa

Anthony Nouy  
Ivan Oseledets  
Holger Rauhut  
Yousef Saad  
Reinhold Schneider  
Christoph Schwab  
Rodolphe Sepulchre

Eugene Tyrtyshnikov  
Konstantin Usevich  
Sabine Van Huffel  
Bart Vandereycken  
Frank Verstraete  
Wotao Yin  
Shuzhong Zhang

