Abstract

Oberwolfach Workshop:

Mathematical Imaging and Surface Processing

Dates:
2 February - 7 February 2025 (Code: 2506)

Organizers:

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Antonin Chambolle, Paris
Benedikt Wirth, Münster

New computing paradigms characterize the recent development of imaging processing, computer vision, and geometry processing. Deep neural networks push the limits of classification, analysis, and real-time modeling. New multiscale physics and dynamic models enable increased accuracy and a new level of complexity that can be processed. Combining variational models with powerful learning methodology leads to breakthroughs in the solution of demanding inverse problems in imaging, and now, as well, for a growing number of applications in surface and geometry processing. On this background, there is an ever-growing need for new mathematical modeling approaches and rigorous mathematical analysis. The proposed workshop intends to bring together scientists from PDE analysis, calculus of variations, approximation theory, and numerical analysis with researchers from image and geometry processing, computer graphics, and machine learning. It aims for lively exchanges on new approaches, models, and the underlying theoretical challenges.