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## **„Motion and Deformation in Images“**

Abstract:

Dynamical imaging – the treatment of videos and multimodal images – leads to mathematical modeling by optical flow, image metamorphosis, and optimal transport. We present recent adaptations of the three concepts for manifold-valued image processing.

The optimal flow approach is driven by applications in material sciences, in particular electron backscatter diffraction.

While metamorphosis can be seen from an optimal control point of view, there is also a geometric concept which endows the space of images with a nonlinear Riemannian structure, which can be used for diffeomorphism estimation by minimizing the path energies of a corresponding geodesics.