

## **Challenges in dynamic tomography**

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Image reconstruction in standard tomography (CT, MRI, etc.) is well understood if the object under investigation is stationary during the data acquisition. However, this assumption is violated in many medical and industrial applications, e.g. due to patient and organ motion or while imaging fluid flow. Consequently, standard reconstruction techniques lead to motion artefacts in the computed images, e.g. blurring, ghosting, etc., which can significantly impede a reliable diagnostics.

For this reason, the reconstruction method has to take the time-dependency into account.

The mathematical model of this dynamic problem reveals that additional information, for example about the motion, are required. In this talk, we present reconstruction algorithms that compensate for the object's deformation. Further, we discuss the effect of the dynamic behavior on the quality of the reconstructed images.