

# Remote controlled phantom for dynamic tomography

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## Abstract

Tomography is a well known imaging modality widely used in different applications, which has also motivated a lot of inverse problems research which often try to push the boundaries of what is possible. A good example is dynamic tomography where the object of interest changes during the tomographic measurement process causing reconstruction errors and motion artifacts if traditional methods are used. In recent years we have seen active research and many promising results on dynamic tomography. However openly available real data for assessing and comparing the quality of novel methods has not advanced as fast.

The Spatio-TEmporal Motor-POwered (STEMPO) phantom is a computer controlled mechanical device designed for collecting dynamic X-ray tomography data using various measurement setups. Properties of both the device and the currently available data are briefly described and to illustrate its capabilities, some examples are given using methods such as sparse + low-rank matrix decomposition and spatio-temporal wavelet regularization.