

# Point source localisation—Lasso on measures: how to do it

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## **Abstract**

Locating stars in the sky or biomarkers in cells are examples of point source localisation problems, or superresolution beyond the diffraction limit. Such problems are generally modelled as Radon-norm regularised inverse problems on measures. Their solution demands optimisation methods in spaces of measures, which are much less developed than optimisation methods in Hilbert spaces. Most numerical algorithms for point source localisation are based on the Frank–Wolfe conditional gradient method, for which ad hoc convergence theories have been developed. In this work, we look into ways to extend other conventional optimisation methods to spaces of measures, starting from generally applicable convergence theories and first principles.