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# Uniqueness results and fast reconstructions from correlation data on the Sun

Thorsten Hohage\*<sup>†</sup>

<sup>1</sup>Georg-August-Universität Göttingen – Germany

## Abstract

Random oscillations of the solar surface excited by turbulent convection have been recorded at great spatial and temporal resolution by satellite and ground based instruments since several decades. We study the passive imaging problem to reconstruct physical quantities such as flow speed, density, and sound speed from correlations of such oscillations. We will report on recent global uniqueness results for such inverse problems as well as efficient reconstruction methods. Joint work with Björn Müller, Damien Fourier, and Laurent Gizon.

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\*Speaker

<sup>†</sup>Corresponding author: