



Universität Stuttgart



Kolloquium des Fachbereichs Mathematik

Es spricht am Montag, 05. Dezember 2022 um 16:00 Uhr

Herr Professor Todd Quinto

(TUFTS University, Medford USA)

zum Thema: „**Seismic imaging with generalized Radon transforms**“

Abstract:

In this talk, we consider seismic operators with two scanning geometries: *zero-offset* (the source and receiver are at the same point and translated over the surface of the earth) and *common-offset* (the source and receiver are offset a fixed distance from each other and translated together). We explain the basics of the problem and show how the data can be modeled using a Radon transform that integrates over surfaces determined by the background velocity. We then analyze the model with a linearly increasing background velocity in two spatial dimensions. We show for zero offset data that a standard reconstruction operator (the normal operator) will reliably image features (wavefront set) of the object and not add artifacts. We prove that this is stable under sufficiently small perturbations of the background velocity or of the offset. Therefore, if the nonconstant sound speed is close enough to being linearly increasing then its normal operator will also recover features and not add artifacts. We provide a reconstruction from simulated data to demonstrate our results

Der Vortrag findet im Sitzungssaal 8.122 der Fakultät Mathematik und Physik, Pfaffenwaldring 57, 70569 Stuttgart-Vaihingen statt. Interessenten sind herzlich eingeladen!

Die Dozentinnen und Dozenten des Fachbereichs Mathematik