Adrian Kirkeby - DTU Orbit (11/06/2018)

Adrian Kirkeby

Organisations

PhD Student, Department of Applied Mathematics and Computer Science
14/12/2015 → present
adrki@dtu.dk
VIP

Scientific Computing
16/12/2015 → present
VIP

Publications:

Stable source reconstruction from a finite number of measurements in the multi-frequency inverse source problem
We consider the multi-frequency inverse source problem for the scalar Helmholtz equation in the plane. The goal is to
reconstruct the source term in the equation from measurements of the solution on a surface outside the support of the
source. We study the problem in a certain finite dimensional setting: From measurements made at a finite set of
frequencies we uniquely determine and reconstruct sources in a subspace spanned by finitely many Fourier-Bessel
functions. Further, we obtain a constructive criterion for identifying a minimal set of measurement frequencies sufficient for
reconstruction, and under an additional, mild assumption, the reconstruction method is shown to be stable. “Our analysis
is based on a singular value decomposition of the source-to-measurement forward operators and the distribution of
positive zeros of the Bessel functions of the first kind. The reconstruction method is implemented numerically and our
theoretical findings are supported by numerical experiments.

General information
State: Published
Organisations: Department of Applied Mathematics and Computer Science, Scientific Computing, Neutrons and X-rays
for Materials Physics
Authors: Karamehmedovic, M. (Intern), Kirkeby, A. (Intern), Knudsen, K. (Intern)
Number of pages: 24
Publication date: 2018
Main Research Area: Technical/natural sciences

Publication information
Journal: Inverse Problems
Volume: 34
Article number: 065004
ISSN (Print): 0266-5611
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): SNIP 1.419 SJR 1.209
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.84 SJR 1.49 SNIP 1.414
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 1.416 SNIP 1.431 CiteScore 1.82
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 1.252 SNIP 1.408 CiteScore 1.63
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 1.215 SNIP 1.615 CiteScore 2.13
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 1.258 SNIP 1.838 CiteScore 2.15
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 1.208 SNIP 1.563 CiteScore 1.9
ISI indexed (2011): ISI indexed yes
Web of Science (2011): Indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 1.409 SNIP 1.63
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 1.397 SNIP 1.757
Web of Science (2009): Indexed yes
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 1.228 SNIP 1.853
Scopus rating (2007): SJR 1.042 SNIP 1.966
Scopus rating (2006): SJR 0.924 SNIP 1.788
Scopus rating (2005): SJR 1.15 SNIP 1.936
Scopus rating (2004): SJR 0.8 SNIP 1.567
Scopus rating (2003): SJR 0.796 SNIP 1.399
Scopus rating (2002): SJR 1.112 SNIP 1.459
Scopus rating (2001): SJR 0.972 SNIP 1.499
Scopus rating (2000): SJR 0.766 SNIP 1.593
Scopus rating (1999): SJR 0.881 SNIP 1.394

Original language: English

DOIs:
10.1088/1361-6420/aaba83

Source: PublicationPreSubmission
Source-ID: 145802355
Publication: Research - peer-review › Journal article – Annual report year: 2018

Projects:

**Mathematical Analysis and Computations for Multiphysics Tomography**

Technical University of Denmark

Period: 15/12/2015 → 16/05/2019

Number of participants: 4

Phd Student:
Kirkeby, Adrian (Intern)

Supervisor:
Evgrafov, Anton (Intern)
Karamanov, Mirza (Intern)

Main Supervisor:
Knudsen, Kim (Intern)

Financing sources
Source: Internal funding (public)
Name of research programme: Institut stipendie (DTU)
Project: PhD