Personal details and date of list of publications

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- Date of list of publications: 30 August 2024

A Peer-reviewed scientific articles:

1. S. R. Jathar, M. Kar, **J. Railo**: Broken ray transform for twisted geodesics on surfaces with a reflecting obstacle, *The Journal of Geometric Analysis* (2024), vol. 34, article no. 212.
2. G. Covi, T. Tyni, **J. Railo**, P. Zimmermann: Stability estimates for the inverse fractional conductivity problem, *SIAM Journal on Mathematical Analysis* (2024), vol. 56 (2), pp. 2456–2487.
3. **J. Railo**, P. Zimmermann: Low regularity theory for the inverse fractional conductivity problem, *Nonlinear Analysis* 239 (2024), article no. 113418.
4. **J. Railo**, P. Zimmermann: Fractional Calderón problems and Poincaré inequalities on unbounded domains, *Journal of Spectral Theory* (2023), vol. 13 (1), pp. 63–131.
5. M. Kar, **J. Railo**, P. Zimmermann: The fractional p-biharmonic systems: optimal Poincaré constants, unique continuation and inverse problems, *Calculus of Variations and Partial Differential Equations* (2023), vol. 62 (4), article no. 130.
6. J. Ilmavirta, K. Mönkkönen, **J. Railo**: On mixed and transverse ray transforms on orientable surfaces, *Journal of Inverse and Ill-posed Problems* (2023), vol. 31 (1), pp. 43–63.
7. **J. Railo**, P. Zimmermann: Counterexamples to uniqueness in the inverse fractional conductivity problem with partial data, *Inverse Problems and Imaging* (2023), vol. 17 (2), pp. 406–418.
8. G. Covi, K. Mönkkönen, **J. Railo**, G. Uhlmann: The higher order fractional Calderón problem for linear local operators: Uniqueness, *Advances in Mathematics* 399 (2022), article no. 108246.
9. G. Covi, K. Mönkkönen, **J. Railo**: Unique continuation property and Poincaré inequality for higher order fractional Laplacians with applications in inverse problems, *Inverse Problems and Imaging* (2021), no. 15 (4), pp. 641–681.
10. **J. Railo**: Fourier analysis of periodic Radon transforms, *Journal of Fourier Analysis and Applications* 26 (2020), article no. 64.
11. J. Ilmavirta, O. Koskela, **J. Railo**: Torus computed tomography, *SIAM Journal on Applied Mathematics* 80 (2020), no. 4, pp. 1947–1976.
12. J. Ilmavirta, **J. Railo**: Geodesic ray transform with matrix weights for piecewise constant functions, *Annales Academiae Scientiarum Fennicae Mathematica* 45 (2020), pp. 1095–1102.
13. J. Lehtonen, **J. Railo**, M. Salo: Tensor tomography on Cartan-Hadamard manifolds, *Inverse Problems* 34 (2018), Special Issue on 100 years of the Radon transform, no. 4, 044004.
14. S. Tukiainen, **J. Railo**, M. Laine, J. Hakkarainen, R. Kivi, P. Heikkinen, H. Chen, J. Tamminen: Retrieval of atmospheric CH4 profiles from Fourier transform infrared data using dimension reduction and MCMC, *Journal of Geophysical Research: Atmospheres* 121 (2016), no. 17, pp. 312–327.

B Non-refereed scientific articles:

1. S. R. Jathar, **J. Railo**: Inverse Problems for Twisted Geodesic Flows, *Preprint* (2024), 6 pages (survey article), submitted manuscript (conference proceedings of the IPMS 2024).
2. **J. Railo**: A note on the Fourier magnitude data and Sobolev embeddings, *Preprint* (2024), 11 pages, arXiv:2404.13329, submitted manuscript.
3. S. R. Jathar, M. Kar, **J. Railo**: Loop group factorization method for the magnetic and thermostatic nonabelian ray transforms, *Preprint* (2023), 19 pages, arXiv:2312.06023, submitted manuscript.

4. Y.-H. Lin, **J. Railo**, P. Zimmermann: The Calderón problem for a nonlocal diffusion equation with time-dependent coefficients, *Preprint* (2022), 37 pages, arXiv:2211.07781, submitted manuscript.

5. G. Covi, **J. Railo**, P. Zimmermann: The global inverse fractional conductivity problem, *Preprint* (2022), 29 pages, arXiv:2204.04325, submitted manuscript.

G Theses:

1. **J. Railo**: *Geodesic tomography problems on Riemannian manifolds*, Doctoral dissertation, Dissertations series (2019), number 161, University of Jyväskylä, ISBN: 978-951-39-7958-4. Advisor: Mikko Salo. Opponent: François Monard (UC Santa Cruz, USA), pre-examiners: Todd Quinto (Tufts University, USA) and Hanming Zhou (UC Santa Barbara, USA).

2. **J. Railo**: *Laskennallisista inversio-ongelmista - erityisesti tilastollinen lähestymistapa ja sen soveltaminen ilmakehän kaukokartoituksessa*, Master's thesis, University of Tampere (2014), https://urn.fi/URN:NBN:fi:uta-201407091974. Advisor: Johanna Tamminen (Finnish Meteorological Institute, Helsinki). Title in English: *On Computational Inverse Problems – the statistical approach with an application to atmospheric remote sensing*.

I Audiovisual material, ICT software:

1. O. Koskela, **J. Railo**: MATLAB Implementation of Torus CT, *MATLAB codes (2019)*, 10.5281/zenodo.3243363. Open access Matlab codes related to Item 10 in the list A.