

List of Publications

June 6, 2025

Name: Matti Juhani Lassas

Summary: 1 international monographs and 1 monograph dissertation, 171 appeared or accepted papers in refereed international journals, 43 papers in edited collections or conference proceedings, 5 US patents, 17 arXiv preprints.

Following the usual convention of the field, in the papers published in the mathematical journals, the authors are in alphabetical order.

A.1. Papers in international refereed journals:¹

- [1]* C. Fefferman, S. Ivanov, M. Lassas, J. Lu, H. Narayanan: Reconstruction and interpolation of manifolds II: Inverse problems for Riemannian manifolds with partial distance data. To appear in *American Journal of Mathematics*. Preprint arXiv:2111.14528, 38 pp.
- [2] M. Lassas, L. Oksanen, S. Sahoo, M. Salo, A. Tetlow: Inverse problems for non-linear Schrödinger equations with time-dependent coefficients. To appear in *SIAM Journal on Mathematical Analysis*. Preprint arXiv:2201.03699.
- [3] C. Fefferman, S. Ivanov, M. Lassas, H. Narayanan: Fitting a manifold of large reach to noisy data. *Journal of Topology and Analysis*. 17 (2025), no. 2, 315–396, 84 pp.
- [4] M. de Hoop, J. Ilmavirta, M. Lassas: Reconstruction along a geodesic from sphere data in Finsler geometry and anisotropic elasticity. *Journal de Mathématiques Pures et Appliquées* 196 (2025), Paper No. 103688, 21 pp.
- [5] X. Chen, M. Lassas, L. Oksanen, G. Paternain: Retrieving Yang–Mills–Higgs fields in Minkowski space from active local measurements. *Mathematische Annalen* 391 (2025), no. 2, 2385–2428, 44 pp.
- [6] J. Ilmavirta, M. Lassas, J. Lu, L. Oksanen, L. Ylinen: Quantum computing algorithms for inverse problems on graphs and an NP-complete inverse problem. *Inverse Problems and Imaging*. 19 (2025), no. 4, 660–692.
- [7] D. Burago, S. Ivanov, M. Lassas, J. Lu: Stability of the Gel’fand inverse boundary problem via the unique continuation. *Analysis & PDE* 18 (2025), no. 4, 963–1035, 74 pp.

¹Ten most important papers are marked by a star, e.g. [1]*.

- [8] M. Lassas, T. Liimatainen, L. Potenciano-Machado, T. Tyni: Stability and Lorentzian geometry for an inverse problem of a semilinear wave equation. *Analysis & PDE* 18 (2025), no. 5, 1065–1118.
- [9] F. Cakoni, N. Hovsepyan, M. Lassas, M. Vogelius: On the lack of external response of a nonlinear medium in the second-harmonic generation process *SIAM Journal on Mathematical Analysis* 57 (2025), no. 2, 1370–1405, 41 pp.
- [10] E. Blasten, P. Exner, H. Isozaki, M. Lassas, J. Lu: Inverse problems for locally perturbed lattices – Discrete Hamiltonian and quantum graph. *Annales Henri Lebesgue* 7 (2024), 267–305, 36 pp.
- [11] M. Lassas, M. Nursultanov, L. Oksanen, L. Ylinen: Disjoint data inverse problem on manifolds with quantum chaos bounds. *SIAM Journal on Mathematical Analysis* 56 (2024), no. 6, 7748–7779.
- [12] E. Karvonen, M. Lassas, P. Pankka, S. Siltanen: TILT – Topological Interface Recovery in Limited-Angle Tomography. *SIAM Journal on Imaging Sciences (SIIMS)* 17 (2024), no. 3, 1761–1794.
- [13] M. de Hoop, M. Lassas, Matti, J. Lu, L. Oksanen: Stable Recovery of Coefficients in an Inverse Fault Friction Problem. *Archive for Rational Mechanics and Analysis (ARMA)* 248 (2024), no. 4, paper 64.86A15.
- [14] M. Lassas, T. Liimatainen, L. Potenciano-Machado, T. Tyni: An inverse problem for a semi-linear wave equation: a numerical study. *Inverse Problems Imaging* 18 (2024), no. 1, 62–85.
- [15] C. Carstea, M. Lassas, T. Liimatainen, L. Oksanen: An inverse problem for the Riemannian minimal surface equation. *Journal Differential Equations* 379 (2024), 626–648.
- [16] S. Latva-Aijo, F. Zanetti, A. Honkanen, S. Huotari, M. Lassas, S. Siltanen: Inner product regularized multi-energy X-ray tomography for material decomposition. *Applied Mathematics for Modern Challenges* 2 (2024), 1–16.
- [17] M. de Hoop, M. Lassas, J. Lu, L. Oksanen: Quantitative unique continuation for the elasticity system with application to the kinematic inverse rupture problem *Communication in Partial Differential Equations* 48 (2023), no. 2, 286–314.
- [18] M. de Hoop, M. Lassas, J. Lu, L. Oksanen: Stable reconstruction of simple Riemannian manifolds from unknown interior sources. *Inverse Problems* 39 (2023), no. 9, Paper No. 095002, 43 pp.

- [19] E. Blasten, H. Isozaki, M. Lassas, J. Lu: Inverse problems for discrete heat equations and random walks. *SIAM Journal on Discrete Mathematics*. 37 (2023), no. 2, 831-863.
- [20] S. Rautio, R. Murthy, T. Bubba, M. Lassas, S. Siltanen: Learning a microlocal prior for limited-angle tomography. *The IMA Journal of Applied Mathematics* 88 (2023), pp. 888-916
- [21] M. Lassas, T. Liimatainen: Conformal harmonic coordinates. *Communications in Analysis and Geometry*. 31 (2023), no. 8, 2101-2155, 39 pp.
- [22] M. Lassas, Z. Li, Z. Zhang: Well-posedness of the stochastic time-fractional diffusion and wave equations and inverse random source problems. *Inverse Problems* 39 (2023), no. 8, Paper No. 084001, 36 pp.
- [23] E. Blasten, H. Isozaki, M. Lassas, J. Lu: Gelfand’s inverse problem for the graph Laplacian. *Journal of Spectral Theory* 13 (2023), no. 1, 1-45.
- [24] T. von Lerber, V. Lyubopytov, L. Ylinen, M. Lassas, F. Kuppers: All-optical phase memory circuit based on two coupled lasers and external optical injection. *IEEE Journal of Selected Topics in Quantum Electronics* 29 (2023): 7500211.
- [25] H. Kekkonen, M. Lassas, E. Saksman, S. Siltanen Random tree Besov priors – Towards fractal imaging. *Inverse problems and Imaging* 17 (2023), no. 2, 507-531.
- [26] M. de Hoop, J. Ilmavirta, M. Lassas, T. Saksala: Determination of a compact Finsler manifold from its boundary distance map and an inverse problem in elasticity. *Communications in Analysis and Geometry* 31 (2023), no. 7, 1693–1747.
- [27]* Y. Kurylev, M. Lassas, L. Oksanen, G. Uhlmann: Inverse problem for Einstein-scalar field equations. *Duke Mathematical Journal* 171 (2022), 3215-3282, 67 pp.
- [28] T. Balehowsky, A. Kujanpää, M. Lassas, T. Liimatainen: An Inverse Problem for the Relativistic Boltzmann Equation. *Communications in Mathematical Physics* 396 (2022), 983-1049.
- [29] M. Lassas, T. Liimatainen, L. Potenciano-Machado, T. Tyni: Uniqueness and stability of an inverse problem for a semi-linear wave equation. *Journal of Differential Equations* 337 (2022), 395-435.

- [30] M. Lassas, T. Liimatainen, M. Salo: The Calderon problem for the conformal Laplacian. *Communications in Analysis and Geometry* (2022), no. 5, 1121–1184.
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- [35] R. Bosi, Y. Kurylev, M. Lassas: Reconstruction and stability in Gel’fand’s inverse interior spectral problem. *Analysis and PDE* 15 (2022) 273–326.
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- [38]* A. Feizmohammadi, M. Lassas, L. Oksanen: Inverse problems for non-linear hyperbolic equations with disjoint sources and receivers. *Forum of Mathematics, Pi* 9 (2021), Paper No. e10, 52 pp.
- [39] J. Agnelli, V. Kolehmainen, M. Lassas, P. Ola, S. Siltanen: Simultaneous Reconstruction of Conductivity, Boundary Shape, and Contact Impedances in Electrical Impedance Tomography. *SIAM Journal on Imaging Sciences* 14 (2021), 1407–1438.
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