

PUBLICATIONS OF LAURI OKSANEN

- [1] X. Chen, M. Lassas, L. Oksanen, and G. P. Paternain. Retrieving Yang-Mills-Higgs fields in Minkowski space from active local measurements. *Math. Ann.*, **391**(2):2385–2428, 2025.
- [2] E. Burman and L. Oksanen. Finite element approximation of unique continuation of functions with finite dimensional trace. *Math. Models Methods Appl. Sci.*, **34**(10):1809–1824, 2024.
- [3] C. I. Cârstea, M. Lassas, T. Liimatainen, and L. Oksanen. An inverse problem for the Riemannian minimal surface equation. *J. Differ. Equations*, **379**:626–648, 2024.
- [4] M. V. de Hoop, M. Lassas, J. Lu, and L. Oksanen. Stable recovery of coefficients in an inverse fault friction problem. *Arch. Ration. Mech. Anal.*, **248**(4):18, 2024.
- [5] A. Feizmohammadi, Y. Kian, and L. Oksanen. Rigidity of inverse problems for nonlinear elliptic equations on manifolds. *Bull. Lond. Math. Soc.*, **56**(9):2802–2823, 2024.
- [6] M. Lassas, M. Nursultanov, L. Oksanen, and L. Ylinen. Disjoint data inverse problem on manifolds with quantum chaos bounds. *SIAM J. Math. Anal.*, **56**(6):7748–7779, 2024.
- [7] L. Oksanen, M. Salo, P. Stefanov, and G. Uhlmann. Inverse problems for real principal type operators. *Am. J. Math.*, **146**(1):161–240, 2024.
- [8] L. Oksanen, T. Yang, and Y. Yang. Linearized boundary control method for density reconstruction in acoustic wave equations. *Inverse Probl.*, **40**(12):27, 2024.
- [9] E. Burman, A. Feizmohammadi, A. Münch, and L. Oksanen. Spacetime finite element methods for control problems subject to the wave equation. *ESAIM, Control Optim. Calc. Var.*, **29**:40, 2023.
- [10] E. Burman, J. J. J. Gillissen, and L. Oksanen. Stability estimate for scalar image velocimetry. *J. Inverse Ill-Posed Probl.*, **31**(6):811–822, 2023.
- [11] C. I. Cârstea, A. Feizmohammadi, and L. Oksanen. Remarks on the anisotropic Calderón problem. *Proc. Am. Math. Soc.*, **151**(10):4461–4473, 2023.
- [12] M. V. de Hoop, M. Lassas, J. Lu, and L. Oksanen. Quantitative unique continuation for the elasticity system with application to the kinematic inverse rupture problem. *Commun. Partial Differ. Equations*, **48**(2):286–314, 2023.
- [13] S. Alexakis, A. Feizmohammadi, and L. Oksanen. Lorentzian Calderón problem under curvature bounds. *Invent. Math.*, **229**(1):87–138, 2022.
- [14] E. Burman, M. Nechita, and L. Oksanen. A stabilized finite element method for inverse problems subject to the convection-diffusion equation. II: Convection-dominated regime. *Numer. Math.*, **150**(3):769–801, 2022.
- [15] X. Chen, M. Lassas, L. Oksanen, and G. P. Paternain. Detection of Hermitian connections in wave equations with cubic non-linearity. *J. Eur. Math. Soc. (JEMS)*, **24**(7):2191–2232, 2022.
- [16] A. Feizmohammadi and L. Oksanen. Recovery of zeroth order coefficients in non-linear wave equations. *J. Inst. Math. Jussieu*, **21**(2):367–393, 2022.
- [17] Y. Kurylev, M. Lassas, L. Oksanen, and G. Uhlmann. Inverse problem for Einstein-scalar field equations. *Duke Math. J.*, **171**(16):3215–3282, 2022.
- [18] T. Liimatainen and L. Oksanen. Counterexamples to inverse problems for the wave equation. *Inverse Probl. Imaging*, **16**(2):467–479, 2022.
- [19] L. Oksanen, T. Yang, and Y. Yang. Linearized boundary control method for an acoustic inverse boundary value problem. *Inverse Probl.*, **38**(11):26, 2022.
- [20] E. Burman, A. Feizmohammadi, A. Munch, and L. Oksanen. Space time stabilized finite element methods for a unique continuation problem subject to the wave equation. *ESAIM Math. Model. Numer. Anal.*, **55**:S969–S991, 2021.
- [21] X. Chen, M. Lassas, L. Oksanen, and G. P. Paternain. Inverse problem for the Yang-Mills equations. *Comm. Math. Phys.*, **384**(2):1187–1225, 2021.
- [22] A. Feizmohammadi, J. Ilmavirta, Y. Kian, and L. Oksanen. Recovery of time-dependent coefficients from boundary data for hyperbolic equations. *J. Spectr. Theory*, **11**(3):1107–1143, 2021.
- [23] A. Feizmohammadi, J. Ilmavirta, and L. Oksanen. The light ray transform in stationary and static Lorentzian geometries. *J. Geom. Anal.*, **31**(4):3656–3682, 2021.

- [24] A. Feizmohammadi, K. Krupchyk, L. Oksanen, and G. Uhlmann. Reconstruction in the Calderon problem on conformally transversally anisotropic manifolds. *J. Funct. Anal.*, **281**(9):109191, 25, 2021.
- [25] A. Feizmohammadi, M. Lassas, and L. Oksanen. Inverse problems for nonlinear hyperbolic equations with disjoint sources and receivers. *Forum Math. Pi*, **9**:52, 2021.
- [26] A. Kirpichnikova, J. Korpela, M. J. Lassas, and L. Oksanen. Construction of artificial point sources for a linear wave equation in unknown medium. *SIAM J. Control Optim.*, **59**(5):3737–3761, 2021.
- [27] E. Burman, A. Feizmohammadi, and L. Oksanen. A finite element data assimilation method for the wave equation. *Math. Comp.*, **89**(324):1681–1709, 2020.
- [28] E. Burman, A. Feizmohammadi, and L. Oksanen. A fully discrete numerical control method for the wave equation. *SIAM J. Control Optim.*, **58**(3):1519–1546, 2020.
- [29] E. Burman, M. Nechita, and L. Oksanen. A stabilized finite element method for inverse problems subject to the convection-diffusion equation. I: diffusion-dominated regime. *Numer. Math.*, **144**(3):451–477, 2020.
- [30] C. I. Cârstea, G. Nakamura, and L. Oksanen. Uniqueness for the inverse boundary value problem of piecewise homogeneous anisotropic elasticity in the time domain. *Trans. Amer. Math. Soc.*, **373**(5):3423–3443, 2020.
- [31] A. Feizmohammadi and L. Oksanen. An inverse problem for a semi-linear elliptic equation in Riemannian geometries. *J. Differential Equations*, **269**(6):4683–4719, 2020.
- [32] M. Lassas, L. Oksanen, P. Stefanov, and G. Uhlmann. The light ray transform on Lorentzian manifolds. *Comm. Math. Phys.*, **377**(2):1349–1379, 2020.
- [33] E. Burman, M. Nechita, and L. Oksanen. Unique continuation for the Helmholtz equation using stabilized finite element methods. *J. Math. Pures Appl. (9)*, **129**:1–22, 2019.
- [34] Y. Kian, Y. Kurylev, M. Lassas, and L. Oksanen. Unique recovery of lower order coefficients for hyperbolic equations from data on disjoint sets. *J. Differential Equations*, **267**(4):2210–2238, 2019.
- [35] Y. Kian, M. Morancey, and L. Oksanen. Application of the boundary control method to partial data Borg-Levinson inverse spectral problem. *Math. Control Relat. Fields*, **9**(2):289–312, 2019.
- [36] Y. Kian and L. Oksanen. Recovery of time-dependent coefficient on Riemannian manifold for hyperbolic equations. *Int. Math. Res. Not. IMRN*, **(16)**:5087–5126, 2019.
- [37] J. Korpela, M. Lassas, and L. Oksanen. Discrete regularization and convergence of the inverse problem for $1 + 1$ dimensional wave equation. *Inverse Probl. Imaging*, **13**(3):575–596, 2019.
- [38] E. Burman, J. Ish-Horowicz, and L. Oksanen. Fully discrete finite element data assimilation method for the heat equation. *ESAIM Math. Model. Numer. Anal.*, **52**(5):2065–2082, 2018.
- [39] E. Burman, M. G. Larson, and L. Oksanen. Primal-dual mixed finite element methods for the elliptic Cauchy problem. *SIAM J. Numer. Anal.*, **56**(6):3480–3509, 2018.
- [40] E. Burman and L. Oksanen. Data assimilation for the heat equation using stabilized finite element methods. *Numer. Math.*, **139**(3):505–528, 2018.
- [41] M. V. de Hoop, P. Kepley, and L. Oksanen. An exact redatuming procedure for the inverse boundary value problem for the wave equation. *SIAM J. Appl. Math.*, **78**(1):171–192, 2018.
- [42] M. V. de Hoop, P. Kepley, and L. Oksanen. Recovery of a smooth metric via wave field and coordinate transformation reconstruction. *SIAM J. Appl. Math.*, **78**(4):1931–1953, 2018.
- [43] T. Helin, M. Lassas, L. Oksanen, and T. Saksala. Correlation based passive imaging with a white noise source. *J. Math. Pures Appl.*, **116**:132–160, 2018.
- [44] Y. Kian, L. Oksanen, E. Soccorsi, and M. Yamamoto. Global uniqueness in an inverse problem for time fractional diffusion equations. *J. Differential Equations*, **264**(2):1146–1170, 2018.
- [45] Y. Kurylev, L. Oksanen, and G. P. Paternain. Inverse problems for the connection Laplacian. *J. Differential Geom.*, **110**(3):457–494, 2018.
- [46] M. Lassas, L. Oksanen, P. Stefanov, and G. Uhlmann. On the inverse problem of finding cosmic strings and other topological defects. *Comm. Math. Phys.*, **357**(2):569–595, 2018.
- [47] O. Chervova and L. Oksanen. Time reversal method with stabilizing boundary conditions for photoacoustic tomography. *Inverse Problems*, **32**(12):125004, 16, 2016.
- [48] M. V. de Hoop, P. Kepley, and L. Oksanen. On the construction of virtual interior point source travel time distances from the hyperbolic Neumann-to-Dirichlet map. *SIAM J. Appl. Math.*, **76**(2):805–825, 2016.

- [49] M. V. de Hoop, L. Oksanen, and J. Tittelfitz. Uniqueness for a seismic inverse source problem modeling a subsonic rupture. *Comm. Partial Differential Equations*, [41\(12\):1895–1917](#), 2016.
- [50] J. Korpela, M. Lassas, and L. Oksanen. Regularization strategy for an inverse problem for a 1+1 dimensional wave equation. *Inverse Problems*, [32\(6\):065001](#), 24, 2016.
- [51] M. Lassas, L. Oksanen, and Y. Yang. Determination of the spacetime from local time measurements. *Math. Ann.*, [365\(1-2\):271–307](#), 2016.
- [52] S. Liu and L. Oksanen. A Lipschitz stable reconstruction formula for the inverse problem for the wave equation. *Trans. Amer. Math. Soc.*, [368\(1\):319–335](#), 2016.
- [53] T. Helin, M. Lassas, and L. Oksanen. Inverse problem for the wave equation with a white noise source. *Comm. Math. Phys.*, [332\(3\):933–953](#), 2014.
- [54] M. Lassas and L. Oksanen. Inverse problem for the Riemannian wave equation with Dirichlet data and Neumann data on disjoint sets. *Duke Math. J.*, [163\(6\):1071–1103](#), 2014.
- [55] L. Oksanen and G. Uhlmann. Photoacoustic and thermoacoustic tomography with an uncertain wave speed. *Math. Res. Lett.*, [21\(5\):1199–1214](#), 2014.
- [56] L. Oksanen. Inverse obstacle problem for the non-stationary wave equation with an unknown background. *Comm. Partial Differential Equations*, [38\(9\):1492–1518](#), 2013.
- [57] L. Oksanen. Solving an inverse obstacle problem for the wave equation by using the boundary control method. *Inverse Problems*, [29\(3\):035004](#), 12, 2013.
- [58] T. Helin, M. Lassas, and L. Oksanen. An inverse problem for the wave equation with one measurement and the pseudorandom source. *Anal. PDE*, [5\(5\):887–912](#), 2012.
- [59] L. Oksanen. Solving an inverse problem for the wave equation by using a minimization algorithm and time-reversed measurements. *Inverse Probl. Imaging*, [5\(3\):731–744](#), 2011.
- [60] M. Lassas and L. Oksanen. An inverse problem for a wave equation with sources and observations on disjoint sets. *Inverse Problems*, [26\(8\):085012](#), 19, 2010.