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LIST OF PUBLICATIONS (30 May 2025)

A. PEER-REVIEWED SCIENTIFIC ARTICLES

A1 Journal article (refereed), original research

- 1) V. Kolehmainen, M. Vauhkonen, P. A. Karjalainen and J. P. Kaipio. "Assessment of errors in static electrical impedance tomography with adjacent and trigonometric current patterns". *Physiological Measurement*, Vol. 18, pages 289-303, (1997).
- 2) Jyrki T. Kuikka, Jean L. Bailieu, Jukka Hiltunen, Christer Halldin, Kim A. Bergström, Lars Ferde, Patrik Emond, Sylvie Chalon, Meixiang Yu, Tomi Laitinen, Jari Karhu, Erkki Tupala, Tero Hallikainen, Ville Kolehmainen, Laurent Maucclair, Bernard Maziere, Jari Tiihonen, and Denis Guilloteau. "Pharmatokinetics and dosimetry of iodine-123 labelled PE2I in humans, a radioligand for dopamine transporter imaging". *European Journal of Nuclear Medicine*, Vol. 25, pages 531-534, (1998).
- 3) J. P. Kaipio, V. Kolehmainen, M. Vauhkonen and E. Somersalo. "Inverse problem with structural prior information". *Inverse Problems*, Vol. 15, No. 3, pages 713-729, (1999).
- 4) V. Kolehmainen, S. R. Arridge, W. R. B. Lionheart, M. Vauhkonen and J. P. Kaipio. "Recovery of region boundaries of piecewise constant coefficients of an elliptic PDE from boundary data". *Inverse Problems*, Vol. 15, No. 5, pages 1375-1391, (1999).
- 5) J. P. Kaipio, V. Kolehmainen, E. Somersalo and M. Vauhkonen. "Statistical inversion and Monte Carlo sampling methods in electrical impedance tomography". *Inverse Problems*, Vol. 16, pages 1487-1522, (2000) ([In 2014 the manuscript was in the list of 30 most cited papers of the 30 year history of the journal Inverse Problems](#)).
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- 9) V. Kolehmainen, A. Voutilainen and J. P. Kaipio. "Estimation of non-stationary region boundaries in EIT – State estimation approach". *Inverse Problems*. Vol. 17, pages 1937-1956, (2001)
- 10) V. Kolehmainen, S. Prince, S. R. Arridge and J. P. Kaipio. "A state estimation approach to non-stationary optical tomography problem". *J. Opt. Soc. Am. A*. Vol. 20, pages 876 – 889, (2003).
- 11) S. Siltanen, V. Kolehmainen, J. P. Kaipio, E. Somersalo, M. Lassas, S. Järvenpää, P. Koistinen and J. Pirttilä. "Statistical inversion for medical X-ray tomography with few radiographs 1: General theory." *Phys. Med. Biol.* Vol. 48, pages 1437 – 1463, (2003).

- 12) V. Kolehmainen, S. Siltanen, S. Järvenpää, J. P. Kaipio, E. Somersalo, M. Lassas, P. Koistinen and J. Pirttilä. "Statistical inversion for medical X-ray tomography with few radiographs 2: Application to dental radiology." *Phys. Med. Biol.* Vol. 48, pages 1465 – 1490, (2003).
- 13) S. Prince, V. Kolehmainen, J. P. Kaipio, M. A. Franceschini, D. Boas and S. R. Arridge. "Time series estimation of biological factors in optical diffusion tomography". *Phys. Med. Biol.* Vol. 48, pages 1491 – 1504, (2003).
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- 15) T. Tarvainen, V. Kolehmainen, M. Vauhkonen, A. Vanne, A. P. Gibson, S. R. Arridge, M. Schweiger and J. P. Kaipio. "Computational calibration method for optical tomography". *Applied Optics*. Vol. 44, pages 1879 – 1888, (2005).
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- 17) V. Kolehmainen, M. Lassas and P. Ola. "Inverse conductivity problem with an imperfectly known boundary", *SIAM Journal on Applied Mathematics*. Vol. 66, pages 365 – 383, (2005).
- 18) T. Tarvainen, M. Vauhkonen, V. Kolehmainen and J. P. Kaipio. "Finite element model for the coupled radiative transfer equation and diffusion approximation". *International Journal for Numerical Methods In Engineering*. Vol. 65, pages 383 – 405, (2006).
- 19) S. G. Diamond, T. J. Huppert, V. Kolehmainen, M. A. Franceschini, J. P. Kaipio, S. R. Arridge and D. A. Boas. "Dynamic physiological modelling for functional diffuse optical tomography". *NeuroImage*. Vol. 30, pages 88-101, (2006).
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- 23) A. Zacharopoulos, S. R. Arridge, O. Dorn, V. Kolehmainen and J. Sikora. "Three dimensional reconstruction of shape and piecewise constant region values for optical tomography using spherical harmonic parameterisation and a boundary element method". *Inverse Problems*. Vol. 22, pages. 1509-1532, (2006).
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- 27) S. R. Arridge, J. P. Kaipio, V. Kolehmainen, M. Schweiger, E. Somersalo, T. Tarvainen and M. Vauhkonen. "Approximation errors and model reduction with an application in optical

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- 28) S. S. Brandt and V. Kolehmainen, "Structure-from-motion without correspondence from tomographic projections by Bayesian inversion theory". *IEEE Transactions on Medical Imaging*. Vol. 26, pages 238-248, (2007). DOI: [10.1109/TMI.2006.889740](https://doi.org/10.1109/TMI.2006.889740)
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 - 32) V. Kolehmainen, A. Vanne, S. Siltanen, S. Järvenpää, J. P. Kaipio, M. Lassas and M. Kalke. "Bayesian inversion method for 3-D dental X-ray imaging". *Elektrotechnik & Informationstechnik*, Vol. 124 (7-8), pages 248–253 (2007).
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 - 39) V. Kolehmainen, M. Schweiger, I. Nissilä, T. Tarvainen, S. R. Arridge and J. P. Kaipio. "Approximation errors and model reduction in three-dimensional diffuse optical tomography". *J. Opt. Soc. Am. A*. Vol. 26. Pages 2257-2268 (2009).
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- 43) O. Lehtikangas, T. Tarvainen, V. Kolehmainen, A. Pulkkinen, S. R. Arridge and J. P. Kaipio. "Finite element approximation of the Fokker-Planck equation for diffuse optical tomography". *Journal of Quantitative Spectroscopy & Radiative Transfer*. Vol. 111, pages 1406-1417 (2010).
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- 52) J. Heiskala, V. Kolehmainen, T. Tarvainen, J.P. Kaipio and S. R. Arridge. "Approximation error method can reduce artifacts due to scalp blood flow in optical brain activation imaging" *Journal of Biomedical Optics*. Vol 17, No 9 (2012): [096012](https://doi.org/10.1117/1.1217012).
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G. THESES

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H2 Invention disclosures

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