

List of publications, Marko Vauhkonen, 22.5.2025

A1. Scientific papers in peer reviewed journals

1. J.P. Kaipio, J. Tervo, and M. Vauhkonen, Simulations of the heterogeneity of environments by finite element method, *Math Comput Simul*, vol. 39, pp. 155-172, 1995.
2. T. Savolainen, J.P. Kaipio, M. Vauhkonen, and P.A. Karjalainen, An EIT measurement system for experimental use, *Rev Sci Instr*, vol. 67, pp. 3605 -3609, 1996.
3. M. Vauhkonen, J.P. Kaipio, E. Somersalo, and P.A. Karjalainen, Electrical impedance tomography with basis constraints, *Inv Probl*, vol. 13, pp. 523 - 530, 1997.
4. 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, *Physiol Meas*, vol. 18, pp. 289 -303, 1997.
5. M. Vauhkonen, P.A. Karjalainen, and J.P. Kaipio, A Kalman filter approach to track fast impedance changes in electrical impedance tomography, *IEEE Trans Biomed Eng*, vol. 45, pp. 486 -493, 1998.
6. M. Vauhkonen, D. Vadasz, P.A. Karjalainen, E. Somersalo, and J.P. Kaipio, Tikhonov regularization and prior information in electrical impedance tomography, *IEEE Trans Med Imaging*, vol. 17, pp. 285 -293, 1998.
7. J. Hiltunen, K.K. Åkerman, J.T. Kuikka, K.A. Bergström, C. Halldin, T. Nikula, P. Räsänen, J. Tiihonen, M. Vauhkonen, J. Karhu, J. Kupila, E. Länsimies, and L. Farde, Iodine-123 labeled nor-CIT as a potential tracer for serotonin transporter imaging in the human brain with singlephoton emission tomography, *Eur J Nucl Med*, vol. 25, pp. 19 -23, 1998.
8. J.P. Kaipio, P.A. Karjalainen, E. Somersalo, and M. Vauhkonen, State estimation in time-varying electrical impedance tomography, *Ann New York Acad Sci*, vol. 873, pp. 430 -439, 1999.
9. J.P. Kaipio, V. Kolehmainen, M. Vauhkonen, and E. Somersalo, Inverse problems with structural prior information, *Inv Probl*, vol. 15, pp. 713 - 729, 1999.
10. P.J. Vauhkonen, M. Vauhkonen, T. Savolainen, and J.P. Kaipio, Static three-dimensional electrical impedance tomography, *Ann New York Acad Sci*, vol. 873, pp. 472 -481, 1999.
11. P.J. Vauhkonen, M. Vauhkonen, T. Savolainen, and J.P. Kaipio, Three-dimensional electrical impedance tomography based on the complete electrode model, *IEEE Trans Biomed Eng*, vol. 46, pp. 1150 -1160, 1999.
12. 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, *Inv Probl*, vol. 15, pp.1375 -1391, 1999.
13. J. Tervo, P. Kolmonen, M. Vauhkonen, L.M. Heikkinen, and J.P. Kaipio, A finite-element model of electron transport in radiation therapy and a related inverse problem, *Inv Probl*, vol. 15, pp. 1345 -1361, 1999.
14. P.A. Karjalainen, J.P. Kaipio, A.S. Koistinen, and M. Vauhkonen, Subspace regularization method for the single trial estimation of evoked potentials, *IEEE Trans Biomed Eng*, vol. 46, no. 7, pp. 849 -860, July 1999.
15. J. Ollikainen, M. Vauhkonen, P.A. Karjalainen, and J.P. Kaipio, Effects of local skull inhomogeneities on EEG source estimation, *Med Eng Phys*, vol. 21, pp. 143 -154, 1999.

16. K. Jerbi, W.R.B. Lionheart, P.J. Vauhkonen, and M. Vauhkonen, Sensitivity matrix and reconstruction algorithm for EIT assuming axial uniformity, *Physiol Meas*, vol. 21, pp. 61 -66, 2000.
17. P.J. Vauhkonen, M. Vauhkonen, and J.P. Kaipio, Errors due to the truncation of the computational domain in static three-dimensional electrical impedance tomography, *Physiol Meas*, vol. 21, pp. 125 -135, 2000.
18. J. Tervo, M. Vauhkonen, P.J. Ronkanen, and J.P. Kaipio, A three-dimensional finite element model for the control of certain nonlinear bioreactors, *Math Meth Appl Sci*, vol. 23, pp. 357 -377, 2000.
19. P.J. Vauhkonen, M. Vauhkonen, T. Mäkinen, P.A. Karjalainen, and J.P. Kaipio, Dynamic electrical impedance tomography - phantom studies, *Inv Prob Eng*, vol. 8, pp. 495 -510, 2000.
20. M. Tarvainen, M. Vauhkonen, T. Savolainen, and J.P. Kaipio, Boundary element method and internal electrodes in electrical impedance tomography, *Int J Numer Methods Eng*, vol. 50, pp. 809 -824, 2001.
21. V. Kolehmainen, S. R. Arridge, M. Vauhkonen, and J. P. Kaipio, Simultaneous reconstruction of internal tissue region boundaries and coefficients in optical diffusion tomography, *Phys Med Biol*, vol. 15, pp. 1375 -1391, 2000.
22. V. Kolehmainen, M. Vauhkonen, J.P. Kaipio, and S. R. Arridge, Recovery of piecewise constant coefficients in optical diffusion tomography, *Opt Express*, vol. 7, no. 13, pp. 468 -480, 2000.
23. P.J. Vauhkonen, M. Vauhkonen, and J.P. Kaipio, Fixed-lag smoothing and state estimation in dynamic electrical impedance tomography, *Int J Numer Methods Eng*, vol. 50, pp. 2195 -2209, 2001.
24. L.M. Heikkinen, M. Vauhkonen, T. Savolainen, K. Leinonen, and J.P. Kaipio, Electrical process tomography with known internal structures and resistivities, *Inv Prob Eng*, vol. 9, pp. 431 -454, 2001.
25. M. Vauhkonen, W.R.B. Lionheart, L.M. Heikkinen, P.J. Vauhkonen, and J.P. Kaipio, A MATLAB package for the EIDORS project to reconstruct two-dimensional EIT images, *Physiol Meas*, vol. 22, pp. 107 -111, 2001.
26. A. Seppänen, M. Vauhkonen, P.J. Vauhkonen, E. Somersalo, and J.P. Kaipio, State estimation with fluid dynamical evolution models in process tomography - an application to impedance tomography, *Inv Probl*, vol. 17, pp. 467 -484, 2001.
27. A. Seppänen, M. Vauhkonen, E. Somersalo, and J.P. Kaipio, State space models in process tomography - approximation of state noise covariance, *Inv Prob Eng*, vol. 9, pp. 561 -585, 2001.
28. A. Seppänen, M. Vauhkonen, P.J. Vauhkonen, E. Somersalo, and J.P. Kaipio, Fluid dynamical models and state estimation in process tomography: Effect due to inaccuracies in flow fields, *J Electr Imaging*, vol. 10, no. 3, pp. 630 -640, 2001.
29. J. P. Kaipio, V. Kolehmainen, E. Somersalo, and M. Vauhkonen, Statistical inversion and Monte Carlo sampling methods in electrical impedance tomography, *Inv Probl*, vol. 16, pp. 1487 -1522, 2000.
30. L. M. Heikkinen, M. Vauhkonen, T. Savolainen, and J.P. Kaipio, Modelling of internal structures and electrodes in electrical process tomography, *Measur Sci Technol*, vol. 12, pp. 1012 -1019, 2001.
31. K.Y. Kim, B.S. Kim, M.C. Kim, Y.J. Lee, and M. Vauhkonen, Image reconstruction in time-varying electrical impedance tomography based on the extended Kalman filter, *Measur Sci Technol*, vol. 12, pp. 1032 -1039, 2001.
32. J.O. Ollikainen, M. Vauhkonen, P.A. Karjalainen, and J.P. Kaipio, Effects of electrode properties on EEG measurements and a related inverse problem, *Med Eng Phys*, vol. 22, pp. 535 -545, 2000.
33. U. Schmitt, A.K. Louis, C. Wolters, and M. Vauhkonen, Efficient algorithms for the regularization of dynamic inverse problems: II. Applications, *Inv Probl*, vol. 18, pp. 659 -676, 2002.

34. T. Vilhunen, L.M. Heikkinen, T. Savolainen, P.J. Vauhkonen, R. Lappalainen, J.P. Kaipio, and M. Vauhkonen, Detection of faults in resistive coatings with an impedance-tomography-related approach, *Measur Sci Technol*, vol. 13, pp. 865 - 872, 2002.
35. K.Y. Kim, S.I. Kang, M.C. Kim, S. Kim, Y.J. Lee, and M. Vauhkonen, Dynamic image reconstruction in electrical impedance tomography with known internal structures, *IEEE Trans Magn*, vol. 38, pp. 1301 -1304, 2002.
36. R.M. West, D.M. Scott, G. Sunshine, J. Kostuch, L.M. Heikkinen, M. Vauhkonen, B.S. Hoyle, H.I. Schlaberg, R. Hou, and R.A. Williams, In situ imaging of paste extrusion using electrical impedance tomography, *Measur Sci Technol*, vol. 13, pp. 1890 -1897, 2002.
37. L.M. Heikkinen, T. Vilhunen, R.M. West, and M. Vauhkonen, Simultaneous reconstruction of electrode contact impedances and internal electrical properties: II. Laboratory experiments, *Measur Sci Technol*, vol. 13, pp. 1855 -1861, 2002.
38. T. Vilhunen, J.P. Kaipio, P.J. Vauhkonen, T. Savolainen, and M. Vauhkonen, Simultaneous reconstruction of electrode contact impedances and internal electrical properties: I. theory, *Measur Sci Technol*, vol. 13, pp.1848 -1854, 2002.
39. K.Y. Kim, S.I. Kang, M.C. Kim, S. Kim, Y.J. Lee, and M. Vauhkonen, Dynamic electrical impedance tomography with known internal structures, *Inv Prob Eng*, vol. 11, pp. 1 -19, 2003.
40. O.-P. Tossavainen, M. Vauhkonen and V. Kolehmainen, A three-dimensional shape estimation for tracking of phase interfaces in sedimentation processes using electrical impedance tomography, *Meas Sci Technol* vol. 18, pp. 1413-1424, 2007
41. O.-P. Tossavainen, M. Vauhkonen, L.M. Heikkinen, and T. Savolainen, Estimating shapes and free surfaces with electrical impedance tomography, *Measur Sci Technol*, vol. 15, pp. 1402 -1411, 2004.
42. K.Y. Kim, B.S. Kim, M.C. Kim, S. Kim, Y.J. Lee, H.J. Jeon, B.Y. Choi, and M. Vauhkonen, Electrical impedance imaging of two-phase fields with an adaptive mesh grouping scheme, *IEEE Trans. Magn.*, vol. 40, no. 2, pp. 1124 -1127, 2004.
43. M. Kervinen, M. Vauhkonen, J. P. Kaipio, and P. A. Karjalainen, Time varying reconstruction in single photon emission computed tomography, *Int J Imag Syst Technol*, vol. 14, pp. 186 -197, 2004.
44. T. Tarvainen, M. Vauhkonen, V. Kolehmainen, and J.P. Kaipio, Hybrid radiative - transfer -diffusion model for optical tomography, *Appl Opt*, vol. 44, no. 6, pp. 876 - 886, 2005.
45. L.M. Heikkinen, R.M. West, and M. Vauhkonen, Utilizing prior information in the estimation of volume fraction distribution, *Int J Numer Methods Eng*, vol. 64, pp. 1719 -1740, 2005.
46. T. Tarvainen, V. Kolehmainen, M. Vauhkonen, A. Vanne, A.P. Gibson, M. Schweiger, S.R. Arridge, and J.P. Kaipio, Computational calibration method for optical tomography, *Appl Opt*, vol. 44, no. 10, pp. 1879 -1888, 2005.
47. T. Tarvainen, M. Vauhkonen, V. Kolehmainen, S.R. Arridge, and J.P. Kaipio, Coupled radiative transfer equation and diffusion approximation model for photon migration in turbid medium with low-scattering and non-scattering regions, *Phys Med Biol*, vol. 50, pp. 4913 -4930, 2005.
48. E. Boman, J. Tervo and M. Vauhkonen, Modelling the transport of ionizing radiation using the finite element method, *Phys Med Biol*, vol. 50, pp. 265-280, 2005.
49. T. Tarvainen, M. Vauhkonen, V. Kolehmainen, and J.P. Kaipio, Finite element model for the coupled radiative transfer equation and diffusion approximation, *Int J Numer Meth Engng*, vol. 65, no. 3, pp. 383 -405, 2006.
50. S.R. Arridge, O. Dorn, J.P. Kaipio, V. Kolehmainen, M. Schweiger, T. Tarvainen, M. Vauhkonen, A. Zacharopoulos, Reconstruction of subdomain boundaries of piecewise constant coefficients of the radiative transfer equation from optical tomography data, *Inverse Problems*, vol. 22, pp. 2175-2196, 2006.

51. O.-P. Tossavainen, M. Vauhkonen, V. Kolehmainen, K.Y. Kim, Tracking of moving interfaces in sedimentation processes using electrical impedance tomography, *Chemical Engineering Science*, vol. 61, pp. 7717-7729, 2006.
52. O.-P. Tossavainen, V. Kolehmainen, M. Vauhkonen, Free-surface and admittivity estimation in electrical impedance tomography, *Int J Numer Meth Engng*, vol. 66, pp. 1991-2013, 2006.
53. S.R. Arridge, J.P. Kaipio, V. Kolehmainen, M. Schweiger, E. Somersalo, T. Tarvainen, M. Vauhkonen, Approximation errors and model reduction with an application in optical diffusion tomography, *Inverse Problems*, vol. 22, pp. 175-195, 2006.
54. J. Heikkilä, T. Karjalainen, K. Hynynen and M. Vauhkonen, Simulation of localized harmonic motions on a blood vessel wall induced by an acoustic radiation force used in ultrasound elastography, *Phys Med Biol*, vol. 51, pp. 4587-4601, 2006.
55. L.M. Heikkinen, J. Kourunen, T. Savolainen, P.J. Vauhkonen, J.P. Kaipio M. Vauhkonen, Real time three-dimensional electrical impedance tomography applied to multiphase flow imaging, *Measurement Science and Technology*, vol. 17, pp. 2083-2087, 2006.
56. A. Lehtikainen, S. Finsterle, A. Voutilainen, L.M. Heikkinen, M. Vauhkonen and J.P. Kaipio, Approximation errors and truncation of computational domains with application to geophysical tomography, *Inverse Problems and Imaging*, vol. 1, pp. 371-389, 2007.
57. M. Soleimani, M. Vauhkonen, W. Yang, A. Peyton, B.S. Kim, X. Ma, Dynamic imaging in electrical capacitance tomography and electromagnetic induction tomography using Kalman filter, *Measurement Science and Technology*, vol. 18, pp. 3287-3294, 2007.
58. J. Tervo, M. Vauhkonen and E. Boman, Optimal control model for radiation therapy inverse planning applying the Boltzmann transport equation, *Linear Algebra and its Applications*, pp. 1230-1249, 2008
59. M. Vauhkonen, M. Hamsch and H.C. Igney, A measurement system and image reconstruction in magnetic induction tomography, *Physiol Meas*, vol. 29, pp. S445-S454, 2008.
60. T. Tarvainen, M. Vauhkonen, S.R. Arridge, Gauss-Newton reconstruction method for optical tomography using the finite element solution of the radiative transfer equation, *J Quant Spectrosc Radiat Transf*, 109:2767-2778, 2008.
61. A. Seppanen, M. Vauhkonen, P.J. Vauhkonen, A. Voutilainen and J.P. Kaipio, State estimation in process tomography -- Three-dimensional impedance imaging of moving fluids, *International Journal for Numerical Methods in Engineering*, 73:1651-1670, 2008.
62. T. Tarvainen, M. Vauhkonen, V. Kolehmainen, J.P. Kaipio, and S.R. Arridge, Utilizing the radiative transfer equation in optical tomography, *PIERS Online*, 4(6):655-660, 2008.
63. J. Kourunen, R. Käyhkö, J. Matula, J. Käyhkö, M. Vauhkonen, L.M. Heikkinen, Imaging of mixing of two miscible liquids using electrical impedance tomography and linear impedance sensor, *Flow Measurement and Instrumentation*, 19:391-396, 2008.
64. J. Kourunen, T. Savolainen, A. Lehtikainen, M. Vauhkonen, L.M. Heikkinen, Suitability of a PXI platform for an electrical impedance tomography system, *Measurement Science and Technology*, 20 015503 (11pp) doi:10.1088/0957-0233/20/1/015503, 2009.
65. V. Rimpiläinen, L.M. Heikkinen, M. Kuosmanen, A. Lehtikainen, A. Voutilainen, M. Vauhkonen and J. Ketolainen, An electrical impedance tomography-based approach to monitor in vitro sodium chloride dissolution from pharmaceutical tablets, *Review of Scientific Instruments*, vol. 80, 103706, 2009
66. T. Tarvainen, V. Kolehmainen, A. Pulkkinen, M. Vauhkonen, M. Schweiger, S. R. Arridge and J. P. Kaipio, An approximation error approach for compensating for

- modelling errors between the radiative transfer equation and the diffusion approximation in diffuse optical tomography, *Inverse Problems*, vol. 26, doi:10.1088/0266-5611/26/1/015005, 2010
67. Y. Chen, M. Yan, D. Chen, M. Hamsch, H. Liu, H. Jin, M. Vauhkonen, C.H. Igney, J. Kahlert, Y. Wang, Imaging hemorrhagic stroke with magnetic induction tomography: realistic simulation and evaluation, *Physiol Meas*, vol. 31, pp. 809-827, 2010
 68. V. Rimpiläinen, M. Kuosmanen, J. Ketolainen, K. Järvinen, M. Vauhkonen, L.M. Heikkinen, Electrical impedance tomography for three-dimensional drug release monitoring, *European Journal of Pharmaceutical Sciences*, vol. 41, pp. 407-413, 2010
 69. A. Voutilainen, A. Lehtikainen, M. Vauhkonen and J.P. Kaipio, Three-dimensional nonstationary electrical impedance tomography with a single electrode layer, *Meas. Sci. Technol.*, vol. 21, 035107 (10pp), 2010
 70. A. Voutilainen, A. Lehtikainen, M. Vauhkonen and J.P. Kaipio, A reduced-order filtering approach for 3D dynamical electrical impedance tomography, *Meas. Sci. Technol.*, *Meas. Sci. Technol.*, vol. 22, 025504 (12pp), 2011
 71. V. Rimpiläinen, S. Poutiainen, L.M. Heikkinen, T. Savolainen, M. Vauhkonen, J. Ketolainen Electrical capacitance tomography as a monitoring tool for high-shear mixing and granulation, *Chem. Eng. Sci.*, vol. 66, pp. 4090-4100, 2011
 72. J. Reunanen, M. Mononen, M. Vauhkonen, A. Lehtikainen and J. Kaipio, Machine learning approach for locating phase interfaces using conductivity probes, *Inverse Problems in Science and Engineering*, 19:6, 879-902, 2011
 73. Tuomas Koivumäki, Marko Vauhkonen, Jyrki T. Kuikka and Mikko A. Hakulinen, Optimizing bioimpedance measurement configuration for dual-gated nuclear medicine imaging: a sensitivity study, *Med. Biol. Eng. Comput.*, DOI 10.1007/s11517-011-0787-2, 2011
 74. T Koivumäki, M Vauhkonen, J T Kuikka and M A Hakulinen, Bioimpedance-based measurement method for simultaneous acquisition of respiratory and cardiac gating signals, *Physiol. Meas.* vol. 33, pp. 1323-1334, 2012
 75. V. Rimpiläinen, L.M. Heikkinen, M. Vauhkonen, Moisture distribution and hydrodynamics of wet granules during fluidized-bed drying characterized with volumetric electrical capacitance tomography, *Chem. Eng. Sci.*, vol. 75, pp. 220-234, 2012
 76. A. Nissinen, D. Sbarbaro, L.M. Heikkinen and M. Vauhkonen, Reduced forward models in electrical impedance tomography with probe geometry, *Inverse Problems in Science and Engineering*, 22:8, 1259-1284, DOI: 10.1080/17415977.2013.872098, 2014
 77. A. Nissinen, A. Lehtikainen, M. Mononen, S. Lähteenmäki and M. Vauhkonen, Estimation of the bubble size and bubble loading in a flotation froth using electrical resistance tomography, *Minerals Engineering*, vol. 69, December, pp. 1-12, 2014 (DOI: 10.1016/j.mineng.2014.07.001)
 78. K. T. Laitinen, J. M. Miettinen, M. Vauhkonen and R. Lappalainen, Development of novel electroplating tank layout by computer simulations and verification tests, *Transactions of the IMF*, vol. 92, pp. 238-244, 2014 (DOI 10.1179/0020296714Z.000000000191)
 79. T. Koivumäki, S.G. Nekolla, S. Fürst, S. Loher, M. Vauhkonen, M. Schwaiger and M.A. Hakulinen, An integrated bioimpedance-ECG gating technique for respiratory and cardiac motion compensation in cardiac PET, *Physics in Medicine and Biology*, 10/2014; 59(21):6373-6385. DOI: 10.1088/0031-9155/59/21/6373, 2014
 80. T. Koivumäki, J. Teuho, M. Teräs, M. Vauhkonen and M.A. Hakulinen, A novel respiratory gating method for oncological positron emission tomography based on bioimpedance approach, *Annals of Nuclear Medicine*, vol. 29, pp. 351-358, 2015
 81. D. Sbarbaro, M. Vauhkonen and T.A. Johansen, State estimation and inverse problems in electrical impedance tomography: observability, convergence and regularization, *Inverse Problems*, vol. 31, 045004 (27pp), 2015

82. A. Sdayria, F. Ouledsaad, J. Sghaier, A. Nissinen, M. Vauhkonen and A. Elcafsi, In-line monitoring of drying kinetics of a fixed bed using an electrical imaging technique, *Drying Technology*, DOI: 10.1080/07373937.2015.1009535, vol. 33, pp. 941-951, 2015
83. M.J. Kortelainen, T.M. Koivumäki, M.J. Vauhkonen and M.A. Hakulinen, Dependence of left ventricular functional parameters on image acquisition time in cardiac-gated myocardial perfusion SPECT, *Journal of Nuclear Cardiology*, DOI: 10.1007/s12350-015-0178-4, vol. 22, pp. 643-51, 2015
84. A. Nissinen, J.P. Kaipio, M. Vauhkonen and V. Kolehmainen, Contrast enhancement in EIT imaging of the brain, *Physiol. Meas.*, vol. 37, pp. 1-24, 2016, doi: 10.1088/0967-3334/37/1/1
85. O. Lehtikangas, K. Karhunen and M. Vauhkonen, Reconstruction of velocity fields in electromagnetic flow tomography, *Philosophical Transactions Royal Society A*. 374:20150334. <http://dx.doi.org/10.1098/rsta.2015.0334>, 2016
86. G. del Muro-Gonzalez, J. M. J. Huttunen, V. Kolehmainen, A. Seppänen and M. Vauhkonen, Experimental evaluation of 3D electrical impedance tomography with total variation prior, *Inverse Problems in Science and Engineering*, 24(8) pp 1411-1431 (2016). DOI: 10.1080/17415977.2015.1113961
87. A. Voss, P.-G. Mohammad, M. Vauhkonen and A. Seppänen, Electrical capacitance tomography to monitor unsaturated moisture ingress in cement-based materials, *Cement and Concrete Research*, vol. 89, pp. 158-167, 2016
88. M. Han, G. Gonzalez, M. Vauhkonen, A. Laari and Tuomas Koiranen, Local gas distribution and mass transfer characteristics in an annulus-rising airlift reactor with non-Newtonian fluid, *Chemical Engineering Journal*, vol. 308, pp. 929-939, 2017
89. O. Lehtikangas and M. Vauhkonen, Correlated noise and prior models in electromagnetic flow tomography, *Meas. Sci. Technol.*, vol. 28, pp. 054007, <https://doi.org/10.1088/1361-6501/aa61f0>, 2017
90. Matti J. Kortelainen, Tuomas M. Koivumäki, Marko J. Vauhkonen, Marja K. Hedman, Satu T. J. Kärkkäinen, Juanita Niño Quintero and Mikko A. Hakulinen, Respiratory motion reduction with a dual gating approach in myocardial perfusion SPECT: Effect on left ventricular functional parameters, *Journal of Nuclear Cardiology*, DOI:10.1007/s12350-017-0844-9, 2017
91. Jan Seppälä, Aleksi Voutilainen, Janne Heikkilä, Marko Vauhkonen, Surface doses of flattening filter free beams with volumetric modulated arc therapy dose delivery for breast cancer, *Physics and Imaging in Radiation Oncology*, DOI: 10.1016/j.phro.2017.04.001, 2017
92. O. Lehtikangas and M. Vauhkonen, Optimal coil currents in electromagnetic flow tomography, *IEEE Sensors Journal*, vol. 17, pp. 8137-8145, DOI: 10.1109/JSEN.2017.2711638, 2017
93. Bo Gong, Benjamin Schullcke, Sabine Krueger-Ziolek, Marko Vauhkonen, Gerhard Wolf, Ullrich Mueller-Lisse and Knut Moeller, EIT imaging regularization based on spectral graph wavelets, *IEEE Transactions on Medical Imaging*, DOI: 10.1109/TMI.2017.2716825, 2017
94. V.-V. Wettenhovi, V. Kolehmainen, J. Huttunen, M. Kettunen, O. Gröhn and M. Vauhkonen, State estimation with structural priors in fMRI, *Journal of Mathematical Imaging and Vision*, DOI:10.1007/s10851-017-0749-x, vol. 60, pp. 174-188, 2018
95. Dmitry Vladimirovich Gradov, Gerardo Del Muro González, Marko Vauhkonen, Arto Laari and Tuomas Koiranen, Experimental and Numerical Study of Multiphase Mixing Hydrodynamics in Batch Stirred Tank Applied to Ammoniacal Thiosulphate Leaching of Gold, *J Chem Eng Process Technol* 8: 348. doi: 10.4172/2157-7048.1000348, 2017
96. M. Vauhkonen, A. Hänninen and O. Lehtikangas, A measurement device for electromagnetic flow tomography, *Meas. Sci. Technol.*, 29 015401, <https://doi.org/10.1088/1361-6501/aa91dd>, 2018
97. D. V. Gradov, G. González, M. Vauhkonen, A. Laari, T. Koiranen, Experimental investigation of reagent feeding point location in a semi-batch precipitation process,

- Chemical Engineering Science, vol. 190, pp. 361-369, 2018, <https://doi.org/10.1016/j.ces.2018.06.042>
98. A. Voss, M. Vauhkonen, M. Pour-Ghaz, A. Seppänen, Imaging of two-dimensional moisture flows in uncracked and cracked cement-based materials using electrical capacitance tomography, *Materials and Structures*, 51:68, 2018
 99. A. Voss, P. Hosseini, M. Pour-Ghaz, M. Vauhkonen, A. Seppänen, Three-dimensional electrical capacitance tomography - a tool for characterizing moisture transport properties of cement-based materials. *Materials and design*, vol. 181, 107967, <https://doi.org/10.1016/j.matdes.2019.107967>, 2019
 100. Matti J. Kortelainen, Tuomas M. Koivumäki, Marko J. Vauhkonen, Mikko A. Hakulinen, Effect of respiratory motion on cardiac defect contrast in myocardial perfusion SPECT: a physical phantom study, *Annals of Nuclear Medicine*, vol. 33, pp. 305-316, <https://doi.org/10.1007/s12149-019-01335-y>, 2019
 101. Matti Kortelainen, Tuomas Koivumäki, Marko Vauhkonen and Mikko Hakulinen, Time-modified OSEM algorithm for more robust assessment of left ventricular dyssynchrony with phase analysis in ECG-gated myocardial perfusion SPECT, *EJNMMI Physics*, vol. 6, 2019, doi:10.1186/s40658-019-0261-z
 102. M. Vauhkonen, A. Hänninen, J. Jauhiainen, O. Lehtikangas, Multimodal imaging of multiphase flows with electromagnetic flow tomography and electrical tomography, *Measurement Science and Technology* 30 (9): 094001, 2019
 103. T. Lähivaara, R. Yadav, G. Link, and M. Vauhkonen, Estimation of moisture content distribution in porous foam using microwave tomography with neural networks, *IEEE Transactions on Computational Imaging*, vol. 6, pp. 1351-1361, DOI: 10.1109/TCI.2020.3022828, 2020
 104. A. Voss, M. Pour-Ghaz, M. Vauhkonen, A. Seppänen, Retrieval of the saturated hydraulic conductivity of cement-based materials using electrical capacitance tomography, *Cement and Concrete Composites*, <https://doi.org/10.1016/j.cemconcomp.2020.103639>, 2020
 105. Guanghui Liang, Feng Dong, Ville Kolehmainen, Marko Vauhkonen and Shangjie Ren, Nonstationary Image Reconstruction in Ultrasonic Transmission Tomography using Kalman Filter and Dimension Reduction, *IEEE Transactions on Instrumentation & Measurement*, vol. 70, pp. 1-12, DOI:10.1109/TIM.2020.3031172, 2020
 106. Matti Hanhela, Mikko Kettunen, Olli Gröhn, Marko Vauhkonen and Ville Kolehmainen, Temporal Huber Regularization for DCE-MRI, *Journal of Mathematical Imaging and Vision*, <https://doi.org/10.1007/s10851-020-00985-2>, 2020
 107. Hanhela, Matti; Gröhn, Olli; Kettunen, Mikko; Niinimäki, Kati; Vauhkonen, Marko; Kolehmainen, Ville, Data-Driven Regularization Parameter Selection in Dynamic MRI *Journal of Imaging* 7 2: 38, 2021
 108. Wetenhovi, V-V; Vauhkonen, M; Kolehmainen, V., OMEGA - open-source emission tomography software, *Physics in Medicine and Biology* 66 6: 065010, 2021
 109. Matti J. Kortelainen, Tuomas M. Koivumäki, Marko J. Vauhkonen, Mikko A. Hakulinen, Effect of data conserving respiratory motion compensation on left ventricular functional parameters assessed in gated myocardial perfusion SPECT, *EJNMMI Physics*, vol. 8, <https://doi.org/10.1186/s40658-021-00355-w>, 2021
 110. M. Hosseini, A. Kaasinen, G. Link, T. Lähivaara and M. Vauhkonen, Electrical Capacitance Tomography to Measure Moisture Distribution of Polymer Foam in a Microwave Drying Process, in *IEEE Sensors Journal*, vol. 21, no. 16, pp. 18101-18114, doi: 10.1109/JSEN.2021.3085762, 2021
 111. M. Ziaul Arif, O. Lehtikangas, A. Seppänen, V. Kolehmainen and M. Vauhkonen, Joint reconstruction of conductivity and velocity in two-phase flows using electromagnetic flow tomography and electrical tomography, *IEEE Transactions on Instrumentation and Measurement*, pp. 1-17, DOI: 10.1109/TIM.2021.3117365, 2021
 112. R. Yadav, A. Omrani, G. Link, M. Vauhkonen, T. Lähivaara, Microwave Tomography Using Neural Networks for Its Application in an Industrial Microwave Drying System, *Sensors*, vol. 21, 6919. <https://doi.org/10.3390/s21206919>, 2021

113. Hosseini, M.; Kaasinen, A.; Aliyari Shoorehdeli, M.; Link, G.; Lähivaara, T.; Vauhkonen, M. System Identification of Conveyor Belt Microwave Drying Process of Polymer Foams Using Electrical Capacitance Tomography, *Sensors*, vol. 21, 7170. <https://doi.org/10.3390/s21217170>, 2021
114. A. Omrani, R. Yadav, G. Link, T. Lähivaara, M. Vauhkonen, J. Jelonnek, An Electromagnetic Time-Reversal Imaging Algorithm for Moisture Detection in Polymer Foam in an Industrial Microwave Drying System, *Sensors*, vol. 21, 7409. <https://doi.org/10.3390/s21217409>, 2021
115. J. Koponen, T. Lähivaara, M. Vauhkonen and J.P. Kaipio, Model reduction in acoustic inversion by artificial neural network, *The Journal of the Acoustical Society of America*, 150 5: 3435-3444, <https://doi.org/10.1121/10.0007049>, 2021
116. A. Omrani, R. Yadav, G. Link, T. Lähivaara, M. Vauhkonen and J. Jelonnek, An Electromagnetic Time-Reversal Imaging Algorithm for Moisture Detection in Polymer Foam in an Industrial Microwave Drying System, *Sensors*, vol. 21, p. 7409 <https://doi.org/10.3390/s21217409>, 2021
117. U. Hampel, L. Babout, R. Banasiak, E. Schleicher, M. Soleimani, T. Wondrak, M. Vauhkonen, T. Lähivaara, C. Tan, B. Hoyle and A. Penn, Review on Fast Tomographic Imaging Techniques and Their Potential Application in Industrial Process Control, *Sensors*, vol. 22, 2309, <https://doi.org/10.3390/s22062309>, 2022
118. M. Hosseini, A. Kaasinen, G. Link, M. Aliyari Shoorehdeli, T. Lähivaara, and M. Vauhkonen, Tomography-assisted control for the microwave drying process of polymer foams, *J. Process Control* 109, 082015, 2022
119. A. Omrani, Rahul Yadav, Guido Link, Timo Lähivaara, M. Vauhkonen, and J. Jelonnek, Multistatic Uniform Diffraction Tomography Derived Structural-Prior in Bayesian Inversion Framework for Microwave Tomography, *IEEE Transactions on Computational Imaging*, vol. 8, p. 986-995, DOI: 10.1109/TCI.2022.3212835, 2022
120. R. Yadav, A. Omrani, G. Link, M. Vauhkonen and T. Lähivaara, Correlated Sample-Based Prior in Bayesian Inversion Framework for Microwave Tomography, in *IEEE Transactions on Antennas and Propagation*, vol. 70, no. 7, pp. 5860-5872, doi: 10.1109/TAP.2022.3145433, 2022.
121. V-V. Wettenhovi, V. Kolehmainen, M. Kettunen, O. Gröhn and M. Vauhkonen, State Estimation of Time-Varying MRI with Radial Golden Angle Sampling. *J Math Imaging Vis*, vol. 64, pp. 825–844, <https://doi.org/10.1007/s10851-022-01095-x>, 2022.
122. M. Z. Arif, A. Seppänen, V. Kolehmainen, M. Vauhkonen, Dual-Modal Electrical Imaging of Two-Phase Flow—Experimental Evaluation of the State Estimation Approach, *Sensors*, vol. 23, 4462, <https://doi.org/10.3390/s23094462>, 2023
123. M. Ziaul Arif, A. Seppänen and M. Vauhkonen, State estimation approach to dual-modal imaging of two-phase flow based on electromagnetic flow tomography and electrical tomography, *Inverse Problems*, vol. 39, 084003, DOI 10.1088/1361-6420/acdcef, 2023.
124. G. Liang, V. Kolehmainen, M. Vauhkonen and F. Dong, Structural similarity driven joint reconstruction of conductivity and sound speed in EIT/UTT dual-modality tomography, *Inverse Problems*, vol. 39, 105010, DOI: 10.1088/1361-6420/acf398, 2023
125. Mahnaz Khalili, Peter Göransson, Jan S. Hesthaven, Antti Pasanen, Marko Vauhkonen, Timo Lähivaara, Monitoring of water volume in a porous reservoir using seismic data: A 3D simulation study, M. Khalili, P. Göransson, J.S. Hesthaven, A. Pasanen, M. Vauhkonen, T. Lähivaara, *Journal of Applied Geophysics*, vol. 229, p. 105453, <https://doi.org/10.1016/j.jappgeo.2024.105453>, 2024
126. P Lesonen, V-V Wettenhovi, V Kolehmainen, A Pulkkinen and M Vauhkonen, Anatomy-guided multi-resolution image reconstruction in PET, *Phys. Med. Biol.*, vol. 69, 105023, DOI 10.1088/1361-6560/ad4082, 2024
127. P. Kuusela, M. Vauhkonen, OOEIT: An open source object oriented electrical impedance tomography software package, *Applied Mathematics for Modern Challenges*, vol. 2, pp. 243-261, doi:10.3934/ammc.20240102024, 2024

128. M. Ziaul Arif, T. Lähivaara and M. Vauhkonen, Deep learning-assisted dual-modal tomography for phase flow rate estimation in two-phase oil-water flow systems, *Meas. Sci. Technol.*, vol 35, p. 075302, DOI 10.1088/1361-6501/ad3a0a, 2024

A2. Peer reviewed papers in scientific conference proceedings

1. M. Vauhkonen, J.P. Kaipio, E. Somersalo, and P.A. Karjalainen, Basis constraint method for estimating conductivity distribution of the human thorax, in *Proceedings of the IX International Conference on Electrical Bio-Impedance*, 1995, pp. 528 -531.
2. M. Vauhkonen, D. Vadasz, P.A. Karjalainen, and J.P. Kaipio, Subspace regularization method for electrical impedance tomography, in *Proc 1st Int Conf Bioelectromagn*, Tampere, Finland, 1996, pp. 165 -166.
3. J. Ollikainen, M. Vauhkonen, J.P. Kaipio, and P.A. Karjalainen, Using resistivity estimates in EEG inverse problems, in *Proc 1st Int Conf Bioelectromagn*, Tampere, Finland, 1996, pp. 251 -252.
4. J. Ollikainen, M. Vauhkonen, P.A. Karjalainen, P.J. Ronkanen, and J.P. Kaipio, Effect of skull inhomogeneities on EEG localization accuracy, in *Proc 19th Int Conf IEEE Eng Med Biol Society*, Chicago, October 30-November 2 1997, pp. 2120 -2123.
5. M. Vauhkonen, P.J. Vauhkonen, J.P. Kaipio, and P.A. Karjalainen, Three dimensional electrical impedance tomography using complete electrode model, in *Proc SPIE's 42nd Annual Meeting, Computational, experimental and numerical methods for solving ill-posed inverse imaging problems: medical and nonmedical applications*, R.L. Barbour, M.J. Carvlin, and M.A. Fiddy, Eds., San Diego, USA, June 27-August 1, 1997, pp. 166 -174, SPIE.
6. J.P. Kaipio, E. Somersalo, P.A. Karjalainen, and M. Vauhkonen, Recursive estimation of fast impedance changes in electrical impedance tomography and a related problem, in *Proc SPIE's 42nd Annual Meeting, Computational, experimental and numerical methods for solving ill-posed inverse imaging problems: medical and nonmedical applications*, R.L. Barbour, M.J. Carvlin, and M.A. Fiddy, Eds., San Diego, USA, June 27-August 1, 1997, pp. 208 -216, SPIE.
7. E. Somersalo, J.P. Kaipio, M. Vauhkonen, D. Baroudi, and S. Järvenpää, Impedance imaging and Markov chain Monte Carlo methods, in *Proc SPIE's 42nd Annual Meeting, Computational, experimental and numerical methods for solving ill-posed inverse imaging problems: medical and non-medical applications*, R.L. Barbour, M.J. Carvlin, and M.A. Fiddy, Eds., San Diego, USA, June 27-August 1, 1997, pp. 175 -185.
8. V. Kolehmainen, M. Vauhkonen, P.A. Karjalainen, and J.P. Kaipio, Spatial inhomogeneity and regularization in EIT, in *Proc 19th Int Conf IEEE Eng Med Biol Society*, Chicago, October 30-November 2 1997, pp. 449 -452.
9. P.A. Karjalainen, M. Vauhkonen, and J.P. Kaipio, Dynamic reconstruction in SPET, in *Proc 19th Int Conf IEEE Eng Med Biol Society*, Chicago, October 30-November 2 1997, pp. 777 -780.
10. M. Vauhkonen, P.J. Vauhkonen, and J.P. Kaipio, Estimation of organ boundaries in electrical impedance tomography, in *X Int Conf Electrical Bio-Impedance*, Barcelona, April 5.-9. 1998, pp. 421 -424.
11. P.J. Vauhkonen, M. Vauhkonen, T. Savolainen, and J.P. Kaipio, Static three dimensional electrical impedance tomography, in *X Int. Conf Electrical Bio-Impedance*, Barcelona, April 5.-9. 1998, pp. 411 -414.
12. J.P. Kaipio, P.A. Karjalainen, E. Somersalo, and M. Vauhkonen, State estimation in time-varying electrical impedance tomography, in *X Int. Conf Electrical Bio-Impedance*, Barcelona, April 5.-9. 1998, pp. 389 -392.
13. V. Kolehmainen, E. Somersalo, P. J. Vauhkonen, M. Vauhkonen, and J. P. Kaipio, A Bayesian approach and total variation priors in 3D electrical impedance tomography,

- in Proc 20th Ann Int Conf IEEE Eng Med Biol Soc, Hong Kong, China, October 1998, pp. 1028 -1031.
14. M. Vauhkonen, P.A. Karjalainen, and J.P. Kaipio, A Kalman filter approach applied to the tracking of fast movements of organ boundaries, in Proc 20th Ann Int Conf IEEE Eng Med Biol Soc, Hong Kong, China, October 1998, pp. 1048 -1051.
 15. J.P. Kaipio, V. Kolehmainen, M. Vauhkonen, and E. Somersalo, Construction of anatomy-based priors with anisotropic characteristics with application to electrical impedance tomography, in Proc 20th Ann Int Conf IEEE Eng Med Biol Soc, Hong Kong, China, October 1998, pp. 1032 -1035.
 16. P.A. Karjalainen, M. Vauhkonen, and J.P. Kaipio, Compartmental modeling in dynamic SPET using projection data, in Proc 20th Ann Int Conf IEEE Eng Med Biol Soc, Hong Kong, China, October 1998, pp. 763 -766.
 17. W. R. B. Lionheart, S. R. Arridge, M. Schweiger, M. Vauhkonen, and J. P. Kaipio, Electrical impedance and diffuse optical tomography reconstruction software, in Proceedings of 1st World Congress on Industrial Process Tomography, 1999, pp. 474 -477.
 18. P.J. Vauhkonen, M. Vauhkonen, and J.P. Kaipio, A Matlab package to reconstruct three-dimensional EIT images, in 3rd EPSRC Engineering Network Meeting, Biomedical Applications of EIT, University College London, April 2001, pp. 1 -5.
 19. A. Seppänen, M. Vauhkonen, E. Somersalo, and J.P. Kaipio, Effects of inaccuracies in fluid dynamical models in state estimation of process tomography, in Process Imaging for Automatic Control, Hugh McCann and David M. Scott, Eds. Proc SPIE, 2000, vol. 4188, pp. 69 -80.
 20. M. Vauhkonen, W.R.B. Lionheart, L.M. Heikkinen, P.J. Vauhkonen, and J.P. Kaipio, A Matlab Toolbox to reconstruct two- and three-dimensional EIT images, in 2nd EPSRC Engineering Network Meeting, London, April 5-7 2000, University College London, pp. 7 -10.
 21. E. Boman, M. Vauhkonen, and J. Tervo, Modeling radiation transport in a medium with Boltzmann transport equation using finite element method, in 4th European Congress on Computational Methods in Applied Sciences and Engineering on CD-ROM, Jyväskylä, Finland, 2004, vol. 1, University of Jyväskylä, Department of Mathematical Information Technology.
 22. J. Heikkilä, T. Karjalainen, K. Hynynen, and M. Vauhkonen, 3d simulations of difference frequency effects on a blood vessel in ultrasound stimulated vibro-acoustography, in Proceeding of European Congress on Computational Methods in Applied Sciences and Engineering, Jyväskylä, Finland, July 24-28 2004, University of Jyväskylä, Department of Mathematical Information Technology.
 23. L.M. Heikkinen, J. Kourunen, J. Rastas, P.J. Vauhkonen, J.P. Kaipio, and M. Vauhkonen, Real time three-dimensional electrical impedance tomography applied in multiphase flow imaging, in Proc. 4th World Congress on Industrial Process Tomography, Aizu, Japan, 2005, pp. 540 -545.
 24. J. Tervo, M. Vauhkonen, E. Boman, P. Kokkonen, and M. Nihtilä, Optimal control model for inverse radiation therapy treatment planning, in Proc 44th IEEE Conference on Decision and Control, and the European Control Conference, Seville, Spain, 2005, p. MoC07.5.
 25. J. Kourunen, L.M. Heikkinen, M. Vauhkonen, R. Käyhkö, J. Matula and J. Käyhkö, Imaging of mixing of two miscible liquids using electrical impedance tomography, in Proc. 5th World Congress on Industrial Process Tomography, Bergen, Norway, MFI18, 2007.
 26. M. Hamsch, M. Vauhkonen, C.H. Igney, 16 channel magnetic induction tomography system featuring parallel readout, in Proc. XIII International Conference on Electrical Bioimpedance & VIII Conference on Electrical Impedance Tomography, Graz, Austria, 2007, pp. 484-487.
 27. M. Vauhkonen, M. Hamsch, C.H. Igney, Image reconstruction approaches for Philips magnetic induction tomograph, in Proc. XIII International Conference on Electrical

- Bioimpedance & VIII Conference on Electrical Impedance Tomography, Graz, Austria, 2007, pp. 484-487.
28. M. Hamsch, M. Vauhkonen, C.H. Igney, A magnetic induction tomography system for stroke classification and diagnosis, in Proc. 53rd International Wissenschaftliches Kolloquium, Technische Universität Ilmenau, Germany, 2007, Vol II, pp. 91-96
 29. J. Kourunen, T. Savolainen, A. Lehtikainen, M. Vauhkonen, L.M. Heikkinen, A PXI-based electrical impedance tomography system for industrial use. In Proc of 5th International Symposium on Process Tomography, 2008
 30. T. Tarvainen, M. Vauhkonen, V. Kolehmainen, J.P. Kaipio, S.R. Arridge, Utilizing the Radiative Transfer Equation in Optical Tomography, In PIERS Proceedings, pp. 730-735, 2008
 31. V. Normi, A. Lehtikainen, M. Mononen, J. Rintamäki, T. Maksimainen, S. Luukkanen, M. Vauhkonen, Predicting collapse of the solid content in a column flotation cell using tomographic imaging technique, In CD-ROM Proceedings of Flotation '09, 2009
 32. J.P. Kaipio, A. Voutilainen, A. Lehtikainen and M. Vauhkonen, Three-dimensional nonstationary electrical impedance tomography with a single electrode layer, In Proceedings of the 6th World Congress on Industrial Process Tomography, pp. 562-572, 2010
 33. M. Mononen, M. Vauhkonen, V. Normi, J. Reunanen, J.P. Kaipio and A. Lehtikainen, Interface detection with electrical resistance tomography applied in thickening process, In Proceedings of the 6th World Congress on Industrial Process Tomography. pp. 677-684, 2010
 34. V. Rimpiläinen, S. Poutiainen, L.M. Heikkinen, T. Savolainen, M. Vauhkonen and J. Ketolainen, Monitoring of high-shear mixing and granulation with capacitive measurements and tomography, In Proc of 6th World Congress on Industrial Process Tomography. pp. 44-51, 2010
 35. T. Tarvainen, M. Vauhkonen, S.R. Arridge, Image Reconstruction in Optical Tomography Using the Finite Element Solution of the Radiative Transfer Equation, In Proc. of Biomedical Optics (BIOMED)/ Digital Holography and Three-Dimensional Imaging (DH) Technical Digest, pp. BSuD17, 2010
 36. T. Tarvainen, V. Kolehmainen, A. Pulkkinen, M. Vauhkonen, M. Schweiger, S.R. Arridge, and J.P. Kaipio, Approximation Error Approach for Compensating Modelling Errors in Optical Tomography. In Proc. of Biomedical Optics (BIOMED)/ Digital Holography and Three-Dimensional Imaging (DH) Technical Digest, pp. BSuD48, 2010
 37. V. Normi, A. Lehtikainen, A. Voutilainen, M. Saren, M. Vauhkonen, Measuring non-dissolved gas content in a pulp flow using real-time 3D tomography. In Proceedings of the 6th World Congress on Industrial Process Tomography, pp. 149-158, 2010
 38. Lehtikainen A., Laakkonen P., Vauhkonen M., Rinne A, Saloheimo K., Lähteenmäki S. Measuring flotation process using probe sensor based on 3D electrical resistance tomography, In Proc. of Flotation 11 Conference, Cape Town, South Africa, 2011
 39. M. Vauhkonen, V. Rimpiläinen, L.M. Heikkinen, Three-dimensional capacitance tomography of a conical fluidized bed reactor, IEEE International Instrumentation and Measurement Technology Conference 2012, pp.921-923, 2012
 40. D. Sbarbaro, M. Vauhkonen, T.A. Johansen, Linear inverse problems and state estimation: Regularization, Observability and Convergence, Proc of 15th IFAC Workshop on Control Applications of Optimization, pp. 212-216, 2012
 41. A. Nissinen, A. Lehtikainen A, M. Vauhkonen, A modified finite element approach for froth imaging using electrical impedance tomography, 6th International Symposium on Process Tomography, South Africa, 2012, ISBN 978-0-620-53039-2
 42. T Koivumäki, M Vauhkonen, J Teuho, M Teräs, M A Hakulinen, Bioimpedance-based respiratory gating method for oncologic positron emission tomography (PET) imaging with first clinical results, XV International Conference on Electrical Bio-Impedance

- (ICEBI) & XIV Conference on Electrical Impedance Tomography (EIT) 22-25 April 2013, Heilbad Heiligenstadt, Germany, pp. 012037, 2013
43. A. Nissinen, L.M. Heikkinen, D. Sbarbaro, M. Vauhkonen, Cylindrically symmetric forward model in electrical impedance tomography with probe geometry, 7th World Congress on Industrial Process Tomography, WCIPT7, Krakow, Poland, pp. 420-428, 2013
 44. A. Sdayria, J. Sghaier, M. Vauhkonen, A. Elcagsi, Détermination des cinétiques de séchage d'un lit fixe de paricules par la méthode inverse en utilisant la Tomographie de Capacitance Électrique, Proceedings of 16èmes Journées Internationales de Thermique (JITH 2013) Marrakech (Maroc), du 13 au 15 Novembre, 2013, pp. 1-4, 2013
 45. K. Karhunen, L.M. Heikkinen, M. Vauhkonen, Electrical capacitance tomography monitoring of nonstationary gas-solid flow in a horizontal duct, 7th World Congress on Industrial Process Tomography, WCIPT7, Krakow, Poland, pp. 719-728, 2013
 46. M. Mononen, J. Kourunen, A. Lehtikainen, M. Vauhkonen, J. Huuskonen, Flotation Process Optimization Using Outotec FrothControl Solution, 45th Canadian Mineral Processors Conference, January 1, Canada, pp. 399-407, 2013
 47. K. Karhunen, L. E. Kollár, G. P. Lucas and M. Vauhkonen, Effects of different parameters on the measured boundary voltages in electromagnetic flow tomography, in Proc. of 5th International Workshop on Process Tomography, Jeju, South Korea, 2014, pp. IRA1-3
 48. Lehtikangas O. and Vauhkonen M., Effect of noise level and prior parameters on the velocity field reconstructions in electromagnetic flow tomography, In proceedings of 8th WCIPT, 26-29.9.2016, Iguassu Falls, Brazil
 49. Vauhkonen M. and Lehtikangas O., Reconstruction of velocity fields in electromagnetic flow tomography using different magnetic field excitations, In proceedings of 8th WCIPT, 26-29.9.2016, Iguassu Falls, Brazil
 50. A. Voss, M. Pour-Ghaz, M. Vauhkonen, A. Seppänen. Electrical Capacitance Tomography to monitor unsaturated moisture ingress in cement-based materials. In Proceedings of 8th European Workshop On Structural Health Monitoring, 2016
 51. A. Voss, A. Seppänen, S. Siltanen, L. Salokangas, D. Baroudi, Imaging of moisture content in wood using electrical capacitance tomography. In J. Eberhardsteiner, W. Winter, A. Fadaei, M. Pöll (ed.), World Conference on Timber Engineering (WCTE 2016), 2016
 52. V. Wettenhovi, V. Kolehmainen, J. Huttunen, M. Kettunen, O. Gröhn and M. Vauhkonen, "State estimation in dynamic MRI," 2018 IEEE Nuclear Science Symposium and Medical Imaging Conference Proceedings (NSS/MIC), Sydney, Australia, 2018, pp. 1-6.
 53. A. Voss, M. Pour-Ghaz, M. Vauhkonen, A. Seppänen: "Three-dimensional Electrical Capacitance Tomography Imaging of Cement-based Materials - Application to Characterization of Moisture Transport Properties" in Smart Monitoring, Assessment and Rehabilitation of Civil Structures (SMAR 2019), Potsdam, Germany, August 27-29, 2019
 54. M. Hosseini, A. Kaasinen, G. Link, T. Lähivaara and M. Vauhkonen, LQR Control of Moisture Distribution in Microwave Drying Process Based on a Finite Element Model of Parabolic PDEs, IFAC-PapersOnLine (2020)
 55. M. Khalili, P. Göransson, J. Hesthaven, A. Pasanen, M. Vauhkonen, T. Lähivaara, A 3D Simulation Study for Monitoring Water Content in a Porous Storage, 84th EAGE Annual Conference, 2023
 56. A 3D Simulation Study for Monitoring Water Content in a Porous Storage, M. Khalili, P. Göransson, J.S. Hesthaven, A. Pasanen, M. Vauhkonen and T. Lähivaara, European Association of Geoscientists & Engineers, 84th EAGE Annual Conference & Exhibition, Jun 2023, Volume 2023, p.1 – 5, DOI: <https://doi.org/10.3997/2214-4609.202310514>, 2023

57. Hidden reactive transport neural network: A physics-and chemistry-informed accelerator for pyrite oxidation modeling, H. Qiao, M. Jooshaki, M. Rolle, T. Lähivaara, M. Vauhkonen, T. Kauppila and M. Muniruzzaman, 2024 Goldschmidt Conference, 2024
58. Marouf Khalili, Peter Göransson, JS Hesthaven, Suvi Heinonen, A Pasanen, M Vauhkonen, Timo Lähivaara, Uncertainty quantification in groundwater volume predictions from seismic data using neural networks, NSG 2024 30th European Meeting of Environmental and Engineering Geophysics, pp. 1-5, 2024

B. Non-refereed articles

-

C. Scientific monographs

1. M. Vauhkonen, Electrical Impedance Tomography and Prior Information, PhD thesis, University of Kuopio, Kuopio, Finland, 1997.
2. J.P. Kaipio, A. Seppänen, M. Vauhkonen, A. Lipponen, A. Voutilainen, A. Lehikoinen, V. Rimpiläinen, Process tomography and estimation of velocity fields, in Industrial Tomography, Systems and Applications, Woodhead Publishing Series in Electronic and Optical Materials: Number 71, edited by Mi Wang, Elsevier, Cambridge, UK, 2015
3. M. Vauhkonen, T. Lähivaara, T. Tarvainen, Inverse Problems, in Mathematical Modelling, Springer, Switzerland, edited by S. Pohjolainen, 2016, ISBN 978-3-319-27836-0

D. Articles in professional journals

1. J.P. Kaipio and M. Vauhkonen, Käänteisongelmien tutkimus Kuopion yliopistossa (In Finnish), Tietoyhteys: Tietotekniikka opetuksessa ja tutkimuksessa, vol. 2, pp. 10, 1997
2. L.M. Heikkinen, J. Kourunen, P. Paananen, K. Peltonen, J. Käyhkö and M. Vauhkonen, Electrical resistance tomography technique in pulp and paper industry, Ercoftac bulletin, vol. 84, pp. 9-11, 2010

E. General public articles

1. M. Vauhkonen, Electrical capacitance tomography, Public Service Review, Europe 24, pp. 450, 2012.
2. M. Vauhkonen, The art of equation, Public Service Review, Europe 24, pp. 454, 2012.

F. Artistic works

-

G. Theses

1. M. Vauhkonen, Electrical impedance tomography (In Finnish), Master's thesis, Department of Applied Physics, University of Kuopio, 1994.
2. M. Vauhkonen, Electrical Impedance Tomography and Prior Information, PhD thesis, University of Kuopio, Kuopio, Finland, 1997.

H. Patents, patent applications and invention disclosures

1. M Vauhkonen, C. Igney, M. Hamsch and R. Pinter, Method and device for magnetic induction tomography, US2011/0133731, 2011
2. C. Igney, M. Vauhkonen, M. Yan, D. Chen, H.Liu, H. Jun and R. Kroon, A magnetic induction tomography system, WO 2010097726, 2010
3. J.P. Kaipio, A. Lehtikainen, A. Voutilainen and M. Vauhkonen, Three dimensional imaging of mass flow, WO2011039416 A1, 2011
4. J.P. Kaipio, M. Vauhkonen, J. Reunanen, A. Lehtikainen, Probe indicating intermaterial boundaries, US20130054191 A1, 2013
5. A. Lehtikainen, M. Vauhkonen, Probe arrangement for a flotation cell, WO/2013/024198, 2013
6. Total of ten (10) invention disclosures at the University of Eastern Finland and Philips

I. Audiovisual material

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