Felix Lucka

Publications

Articles in Preparation

[1] N. Bissantz, C. Brune, M. Burger, H. Dette, F. Lucka, K. Proksch and F. Wübbeling. Properties and Limitations of Risk Estimators for Choosing Regularization Parameters in Ill-Posed Problems. *In preparation.*

[2] F. Lucka, S. Tellen, C.H. Wolters, M. Burger. Sparse Recovery Conditions and Realistic Forward Modeling in EEG/MEG Source Reconstruction. *In preparation.*

Publications

[1] S.R. Arridge, P. Beard, M.M. Betcke, B. Cox, N. Huynh, F. Lucka, O. Ogunlade, and E. Zhang. Accelerated high-resolution photoacoustic tomography via compressed sensing. *accepted for Physics in Medicine & Biology*, (arXiv:1605.00133v3), 2016.

[2] S.R. Arridge, M.M. Betcke, B. Cox, F. Lucka, and B. Treeby. On the adjoint operator in photoacoustic tomography. *accepted for Inverse Problems*, (arXiv:1602.02027v2), 2016.

[3] F. Lucka. Fast gibbs sampling for high-dimensional bayesian inversion. *accepted for Inverse Problems, preprint on arXiv*, (1602.08595v2), 2016.

[4] L. Fiederer, J. Lahr, J. Vorwerk, F. Lucka, C. Wolters, A. Aertsen, A. Schulze-Bonhage, and T. Ball. Electrical stimulation of the human cerebral cortex by extracranial muscle activity:effect quantification with intracranial eeg and fem simulations. *IEEE Transactions on Biomedical Engineering*, PP(99):1–1, 2016.

[5] S. Wagner, F. Lucka, J. Vorwerk, C.S. Herrmann, G. Nolte, M. Burger, and C.H. Wolters. Using reciprocity for relating the simulation of transcranial current stimulation to the EEG forward problem. *NeuroImage*, 140:163 – 173, 2016.

[6] L.D.J. Fiederer, J. Vorwerk, F. Lucka, M. Dannhauer, S. Yang, M. Dümpelmann, A. Schulze-Bonhage, A. Aertsen, O. Speck, C.H. Wolters, and T. Ball. The role of blood vessels in high-resolution volume conductor head modeling of EEG. *NeuroImage*, 128:193 – 208, 2016.

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[8] M. Burger and F. Lucka. Maximum a posteriori estimates in linear inverse problems with log-concave priors are proper Bayes estimators. *Inverse Problems*, 30(11):114004, 2014.

[9] S.M. Rampersad, A.M. Janssen, F. Lucka, U. Aydin, B. Lanfer, S. Lew, C.H. Wolters, D.F. Stegeman, and T.F. Oostendorp. Simulating Transcranial Direct Current Stimulation With a Detailed Anisotropic Human Head Model. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 22(3):441–452, 2014.

[10] A.M. Janssen, S.M. Rampersad, F. Lucka, B. Lanfer, S. Lew, Ü. Aydin, C.H. Wolters, D.F. Stegeman, and T.F. Oostendorp. The influence of sulcus width on simulated electric fields induced by transcranial magnetic stimulation. *Physics in Medicine and Biology*, 58(14):4881, 2013.

[11] F. Lucka. Fast Markov chain Monte Carlo sampling for sparse Bayesian inference in high-dimensional inverse problems using L1-type priors. *Inverse Problems*, 28(12):125012, 2012.

[12] F. Lucka, S. Pursiainen, M. Burger, and C.H. Wolters. Hierarchical Bayesian inference for the EEG inverse problem using realistic FE head models: Depth localization and source separation for focal primary currents. *NeuroImage*, 61(4):1364–1382, 2012.

[13] S. Wagner, F. Lucka, M. Burger, L. Grasedyck, J. Haueisen, and C.H. Wolters. Comparison of direct and reciprocal forward modeling approaches in EEG source analysis. *Biomedical Engineering-Biomedizinische Technik*, 57(Suppl. 1):310, 2012.

[14] S. Pursiainen, F. Lucka, and C.H. Wolters. Complete electrode model in EEG: relationship and differences to the point electrode model. *Physics in Medicine & Biology*, 57(4):999–1017, 2012.

[15] F. Lucka, S. Pursiainen, M. Burger, and C.H. Wolters. Hierarchical Bayesian Models for EEG Inversion: Depth Localization and Source Separation for Focal Sources in Realistic FE Head Models. In *Biomedical Engineering*, volume 56. De Gruyter, 2011.

[16] F. Lucka. Hierarchical Bayesian Approaches to the Inverse Problem of EEG/MEG Current Density Reconstruction. Diploma thesis, University of Münster, March 2011.