

Bayesian framework for inverse problems

Abstract. Real world inverse problems are based on data whose properties are not necessarily well known, and models that are at best good approximations for the actual physics of the problem. The classical regularization framework is not always well suited for the modelling of the overall problem and the related uncertainties in such cases. In this lecture series, we define inverse problems in the Bayesian context. We discuss topics related to building of models, inference, and computational issues. As a special example, we consider different industrial electrical impedance tomography cases which highlight the uncertainty problems in real world inverse problems.

References

- [1] J. P. Kaipio and E. Somersalo, “Statistical and computational inverse problems,” Applied Mathematical Sciences **160**, Springer-Verlag, New York, 2005.