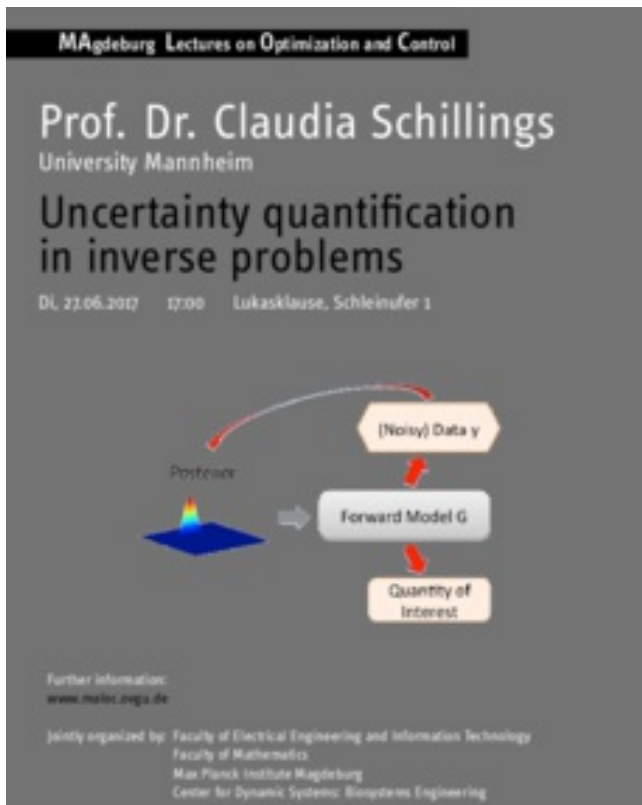


MAGDEBURG LECTURES ON OPTIMIZATION AND CONTROL



Uncertainty quantification in inverse problems

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Universität Mannheim

Time & Place

The presentation on June 27, 2017 will be given in the Lukasklausur › (Schleifufer 1, 39104 Magdeburg) (<http://fatwww.et.uni-magdeburg.de/syst/maloc/seminars/Standort%20Lukas%20Klausur.pdf>) and starts at 5.00 p.m. (Großer Saal).

Abstract

Uncertainty quantification is an interesting, fast growing research area aiming at developing methods to address, characterize and minimize the impact of parameter, data and model uncertainty in complex systems. Applications of uncertainty quantification include all areas of engineering, environmental, physical and biological systems, e.g., groundwater flow problems, shape uncertainties in aerodynamic applications or nano-optics, biochemical networks and finance. The efficient treatment of uncertainties in mathematical models requires ideas and tools from various disciplines including numerical analysis, statistics, probability and computational science. In this talk, we will focus on the identification of parameters through observations of the response of the system - the inverse problem. The uncertainty in the solution of the inverse problem will be described via the

Bayesian approach. We will discuss efficient methods to approximate the solution of the resulting high/ infinite dimensional systems.