Prof. Dr. Mario Ohlberger, Westfälische Wilhelms-Universität Münster

Title: **Model Reduction and Learning for PDE Constrained Optimization**

Abstract:

Model order reduction for parameterized systems has gained a lot of attention in the last two decades. In this talk we will shortly revisit the principal concepts of projection based model order reduction and then focus on their efficient application to solve large scale PDE constrained optimization problems. We will discuss learning strategies, such as adaptive enrichment as well as a combination of reduced order models with machine learning approaches in the contest of time dependent problems. Concepts of rigorous certification and convergence will be presented, as well as numerical experiments that demonstrate the efficiency of the proposed approaches.