In the recent years, optimization has been well established in the industry for very complex and multi-disciplinary problems. Thus the design becomes more and more sensitive to small changes in some parameters. To guarantee the quality of the optimization results, it is therefore necessary to perform either a robustness analysis including sensitivity studies at the end of the optimization or to include robustness criteria into the optimization procedure. For this, detailed qualitative and quantitative knowledge on uncertainties and on noise is required. Often special approaches to handle the data flow have to be integrated into the product development processes. Upper and lower bounds should be estimated. Corresponding computation is highly demanding, particular effective methods have to be implemented and tested in an industrial context. The aim of the colloquium is to bring together the people from the related fields to initiate collaborations on academic and industrial levels. Contributions may cover topics like uncertainty quantification, global and local sensitivity analysis, optimization under uncertainty, optimization of noisy problems, data management for robust design, and robust design methods for large-scale industrial
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