1106-49-1859 **Christiane Tammer*** (christiane.tammer@mathematik.uni-halle.de), Institute of Mathematics, 06099 Halle, Germany, and **Kathrin Klamroth**, **Elisabeth Köbis** and **Anita Schöbel**. *A unified approach to uncertain optimization.*

Most optimization problems involve uncertain data due to measurement errors, unknown future developments and modeling approximations. For companies, these uncertainties could be future demands that have to be predicted in order to adapt the production process. In risk theory, assets are naturally affected by uncertainty due to market changes, changing preferences of customers and unforeseeable events. Consequently, it is highly important to introduce uncertain parameters to optimization problems.

Two approaches regarding uncertain optimization problems have been concentrated on in the literature. First, stochastic optimization assumes that the uncertain parameter is probabilistic. The second approach is called robust optimization, which expects the uncertain parameter to belong to a set that is known prior to solving the optimization problem. The focus lies on looking at the worst case, hence no probability distribution is needed.

Our goal is to present unifying concepts for both stochastic and robust optimization also for the case of infinite uncertainty sets. In particular we show that robust and stochastic optimization problems can be expressed by a vector optimization approach, by a set-based approach and by using nonlinear scalarizing functionals. (Received September 15, 2014)