1.	Record Nr.	UNINA9910825587503321
	Autore	Steffes-lai Daniela
	Titolo	Approximation methods for high dimensional simulation results : parameter sensitivity analysis and propagation of variations for process chains / / Daniela Steffes-lai
	Pubbl/distr/stampa	Berlin : , : Logos Verlag, , [2014] ©2014
	ISBN	3-8325-9163-X
	Descrizione fisica	1 online resource (ix, 219 pages) : illustrations
	Disciplina	003.5
	Soggetti	Sensitivity theory (Mathematics) - Simulation methods
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	PublicationDate: 20140630
	Nota di bibliografia	Includes bibliographical references.
	Sommario/riassunto	Long description: This work addresses the analysis of a sequential chain of processing steps, which is particularly important for the manufacture of robust product components. In each processing step, the material properties may have changed and distributions of related characteristics, for example, strains, may become inhomogeneous. For this reason, the history of the process including design-parameter uncertainties becomes relevant for subsequent processing steps. Therefore, we have developed a methodology, called PRO-CHAIN, which enables an efficient analysis, quantification, and propagation of uncertainties for complex process chains locally on the entire mesh. This innovative methodology has the objective to improve the overall forecast quality, specifically, in local regions of interest, while minimizing the computational effort of subsequent analysis steps. We have demonstrated the benefits and efficiency of the methodology proposed by means of real applications from the automotive industry.