Institut für Elektronische Sensorsysteme

Workshopreihe: „Zukünftige Aspekte der Theorie der Elektrotechnik“

02.07.2018 um 14:00 Uhr im Hörsaal i5, Inffeldgasse 25D/1.OG

Contemporary Fundamentals and Theory in Electrical Engineering

Prof. Dr.-Ing. Herbert De Gersem
Institut für Theorie Elektromagnetischer Felder
Technische Universität Darmstadt, Germany

Fundamentals in Electrical Engineering include (among others) the theory, simulation and optimization of electric devices which are typically based on circuit, field and system models. The importance thereof in all subdisciplines of electrical engineering is rising. Evidently, numerical methods get increasing attention in all faculty chairs. Besides that, a chair on fundamentals and theory in electrical engineering is a valuable methodological complement to the topical chairs, especially when close cooperation is envisioned. Electromagnetic field phenomena, electronic circuits and multicomponent systems get more and more complex. Further technological progress is only feasible when the according theoretical understanding and simulation algorithms keep pace. New developments in numerical mathematics and informatics provide opportunities but need to be adapted or extended to fit the computational needs in electrical engineering. Moreover, students in electrical engineering need to get taught how to apply and possibly further develop algorithms for their applications of interest. The talk will discuss a few contemporary challenges in modelling, simulation and optimization in electrical engineering, define the role of a chair on fundamentals and theory and give a prospection of teaching and research in that context.

Biography: Prof. Dr.-Ing. Herbert De Gersem received the MSc and PhD degrees in electrical engineering from the KU Leuven, Belgium, in 1994 and 2001. From 2001 to 2006 he was at the Technische Universität Darmstadt in Germany. Since 2001 he is an associated professor at the KU Leuven in Belgium. Since 2014 he is full professor and head of the Institut für Theorie Elektromagnetischer Felder at the Technische Universität Darmstadt in Germany. His research interests are finite-element electromagnetic field simulation for electrotechnical devices and particle accelerators and FDTD and FETD techniques for electromagnetic and ultrasonic wave propagation.