UNIVERSITEIT GENT

FACULTY OF ENGINEERING
Department of **Information Technology**

Vacancy
Fully paid 4 years Ph.D. position

Design of Innovative Test Vehicles for the Characterization and Modeling of IC-Level High-Frequency Phenomena

The large-scale integration of Integrated Circuits (ICs) in consumer electronics together with the ever increasing bit rates in new high-tech applications give rise to many challenges for today's design engineers. High-frequency effects, occurring at the Printed Circuit Board (PCB)-level and at the IC-level, can lead to both the malfunctioning of complete systems and Electromagnetic Compatibility (EMC)-issues, prohibiting a swift market introduction of novel technology. A thorough understanding of high-frequency phenomena and electromagnetism, and application of this knowledge during the design cycle of new ICs and high-speed electronic circuits, is indispensable for the successful creation of innovative high-tech products. Also, the lack of reliable test environments, e.g. for EMC-compliance trials, and of accurate models for newly developed ICs, adds to the difficulty of the problem.
The aim of the proposed Ph.D. research is to ***accurately design innovative test vehicles for the characterization and modeling of IC-level high-frequency phenomena***. Creative measurement techniques and novel models incorporating the complete high-frequency behavior of ICs are of high academic importance and have a huge technological impact. Test beds will be manufactured in close cooperation with our industrial partners; especially the **automotive industry and consumer electronics manufacturers** have already shown a clear interest in these new generation models and high-tech measurement systems.

At present a **fully paid 4 years Ph.D. position** is available in the above domain. Basic (graduate) knowledge in electromagnetics and high-frequency electronics is sufficient. The Ph.D. candidate will be provided with all tools necessary to perform state-of-the art research in the field: commercial as well as in-house developed electromagnetic field solvers and extensive measurement facilities.

The research will be performed at the Electromagnetics Group (EM) of the Department of Information Technology from Ghent University, Belgium, which focuses on all aspects of this research domain: from the study and system concept, all the way to the finishing of industrially acceptable test boards. The EM group has an international reputation, more than 25 completed PhDs, and has published over 200 international journal papers in the past 15 years.
Through intensive coaching by senior researchers and professors and close collaboration with the EM-Group's academic and industrial partners, the candidate will be trained as a ***highly skilled scientist and design engineer***. Upon completion of the four years program, the Ph.D. graduate will be ready for a successful academic career or to hold an important position in a high-tech company.

Interested candidates are requested to send their curriculum to Dr. D. Vande Ginste (dries.vande.ginste@intec.UGent.be), Prof. H. Rogier (hendrik.rogier@UGent.be), or Prof. D. De Zutter (Fellow IEEE) (daniel.dezutter@UGent.be). Please provide sufficient details on the EM and high-frequency electronics courses in your curriculum.

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