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**PHD COURSE:**

# Imaging and inversion: from Maxwell's equations to applications in the field

**Speakers:** Dr. Dominique Lesselier, Dr. Marc Lambert  
(*Laboratoire des Signaux et Systèmes (L2S), SUPELEC, Paris, France*)

**Dates:** 11-12-13-14-15 June 2012

**Location:** ICT International Doctoral School, University of Trento

**Duration:** 21 Hours

**Note:** The lessons will be held in English

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The course is aimed at providing a theoretical description and at presenting specific solution to applicative scenarios in the framework of imaging techniques where, starting from the data of electromagnetic field measured outside the region under test, the goal is to determine either the dielectric and/or geometrical features of the objects inside the investigated area.

## • About the Speaker

**Dominique Lesselier** was born in Lons-le-Saunier, France, in August 1953, D. Lesselier received the Engineer degree from Ecole Supérieure d'Electricité (a French "Grande Ecole", currently SUPELEC), Paris, in June 1975, then he was awarded the Doctorat en Sciences and the Doctorat d'Etat es Sciences Physiques degrees both by Université Pierre et Marie Curie, Paris, both under the close direction of (late) Professor Elie Roubine, in February 1978 and in March 1982, respectively.

He became Research Engineer at SUPELEC in October 1978, working and teaching on electromagnetic and acoustic issues within Professor Jean-Charles Bolomey's team, and he was selected as Junior Scientist (Chargé de recherche) by the Centre National de la Recherche Scientifique (CNRS) in October 1981, with a position in the Laboratoire des Signaux et Systèmes, acronymed as L2S, a joint laboratory of CNRS, SUPELEC, and Université Paris-Sud located in Gif-sur-Yvette, where he is also with the Département de Recherche en Electromagnétisme since its creation. He was promoted as Director of Research (Directeur de Recherche) at CNRS (second-class level or seconde classe) in October 1988, and he was advanced in October 2006 to the first-class level, or première classe.

He spent one year (1982-1983) as a Visiting Scholar in the Department of Electrical Engineering, University of California at Los Angeles, at the invitation of Professor Cavour Yeh and in strong co-operation with Professor Akira Ishimaru, University of Washington.

From January 2006 to December 2009, as Director of the Groupement de Recherche CNRS known as GDR ONDES, he managed a large network of French laboratories and scientists involved in the science of waves (electromagnetics, acoustics, photonics) under many guises (refer to present-day activities, and past ones, of

GDR ONDES at <http://gdr-ondes.u-bourgogne.fr/External Links icon>)

His main research activity nowadays pertains to the development of solution methods of wave-field inverse problems, from mathematical theory to numerical solutions to pertinent applications, and vice-versa. Since the end of the 1970's to 2011 or about, he has authored/co-authored 95 journal papers, 10 invited book chapters, 55 contributions to edited proceedings, close to 240 conference papers, and 30+ seminars either in French institutions or, for the most part, abroad.

Director/co-director of 24 PhD since 1986, in charge of close to 25 post-doctoral scientists during their work at L2S for up to two years each one, he has also been jury member (and additionally about half of the time the referee or "rapporteur" of the manuscript) of almost 70 PhD defenses at a number of French universities as well as at those of Delaware, Gent, Leuven, Singapore (NUS) and Tel Aviv, and 8 Habilitations à Diriger des Recherches (in France), and he has carried out more than 200 reviews of journal papers, plus a growing host of reviews of conference papers.

Overall, he so far edited/co-edited/ 4 proceedings of international conferences, 2 collective books, and (nobody achieved more ...) 4 special sections of the journal Inverse Problems since 2000, while with Radio Science he was in charge of three invited reviews that have been published in 2011.

It goes without saying that he was acting/he is acting/ within an array of industry-related projects as well as academic ones, both bilateral and multi-lateral ones, those often involving foreign (non-French) partners also. The same holds true regarding his role as expert on the behalf of many evaluation committees of regulating bodies, funding agencies, schools and universities in France and several other countries in Europe and elsewhere.

D. Lesselier received the R. W. P. King Award in October 1982 from the IEEE Antennas and Propagation Society. Fellow of the Institute of Physics (elected in 1999) and Fellow of the Electromagnetics Academy, Senior Member of the SEE (Société de l'Electricité, de l'Electronique et des Technologies de l'Information et de la Communication) as well as of the IEEE, he is also active since his doctorate within the International Union of Radio Science, Commission B.

Since 2003, per successively renewed terms of 3 years, he is Associate Editor of Radio Science (AGU). Since 2005, he is belonging to the International Advisory Panel of Inverse Problems (IOP Science) after having served on its Editorial Board from 1997 to 2004 with "exceptional renewal for good service" in 2002. Since 2003, he is Member of the Editorial Board of the Journal of Electromagnetic Waves and Applications.

Also, since 1998, he belongs to the Standing Committee of the Electromagnetic Non-Destructive Evaluation Workshop Series (ENDE) and to the International Steering Committee of the International Symposia on Applied Electromagnetics and Mechanics (from which he received the ISEM Chairpersonship Award in 2005) (ISEM), whilst he has been actively engaged into the organization of many international conferences throughout the world, beyond those two specialized series, and obviously of a number of scientific events, with strong international flavor for most of them, in France proper.