Invitation for a Guest Lecture

Dear colleagues,

I would like to invite you for a guest lecture given by

Prof. Marko Vauhkonen

Department of Applied Physics, University of Eastern Finland, Kuopio

"Tomographic Imaging Techniques using Electricity"

Tuesday, 16th September 2014 at 14:00 hrs
Seminar Room EMT, Inffeldgasse 23/II, second floor

Please forward this invitation to colleagues and friends.

Hope to see you all there!
Georg Brasseur

Abstract:
Tomographic imaging techniques that are based on using electrical measurement data have already been studied and developed for several decades. These so-called diffuse or soft field imaging technologies include electrical impedance tomography (EIT), electrical capacitance tomography (ECT) and magnetic induction tomography (MIT). They all have their specific features and fields of applications. Common to these technologies is that electrical measurements are used to produce a cross-sectional or three-dimensional map of electrical properties (conductivity, permittivity or magnetic permeability) of the studied object. In this presentation a brief overview on the research in tomographic imaging using electricity is given. Basic image reconstruction techniques, computational issues and some applications from medical field, minerals engineering, pulp and paper industry and pharmaceutical industry are covered in the presentation.
CV:
Marko Vauhkonen got his MSc in 1994 and PhD in 1997, both in Department of Applied Physics, University of Kuopio, Finland. Before becoming a professor in Industrial Mathematics and Physics in 2009 he was researcher and research director in University of Kuopio. He has also worked as Marie Curie Research Fellow in Philips Research, Aachen, Germany in 2006-2008 and as CTO in a spin-off company Numcore Ltd., Kuopio, in 2008-2009.

His main research interests are in developing and analysing different types of mathematical models that arise from problems in physics. Models are normally ordinary differential equations, partial differential equations or integro-differential equations. A special interest is in model based measurements in which the measurement procedure is described with a proper mathematical model. Applications include diffuse tomographic imaging techniques such as electrical impedance tomography and magnetic induction tomography. He is the leader of Mathematical Modeling research group and has published about 120 peer reviewed articles and conference papers.