

The Royal Academy
of Engineering

Global Research Award

Dielectric/magnetic measurement and imaging

Professor Wuqiang Yang
The University of Manchester
Host: Massachusetts Institute of Technology



Objectives

- To gain new knowledge and extend research experience
- To learn from MIT their scientific attitude, research approach, project management, relationship with industry, dissemination of research outcome and approach to teaching and supervising research students
- To establish collaborative links between the University of Manchester and MIT
- To disseminate our most recent research results
- To promote the reputation of the University of Manchester and the UK in research.

Research topics planned

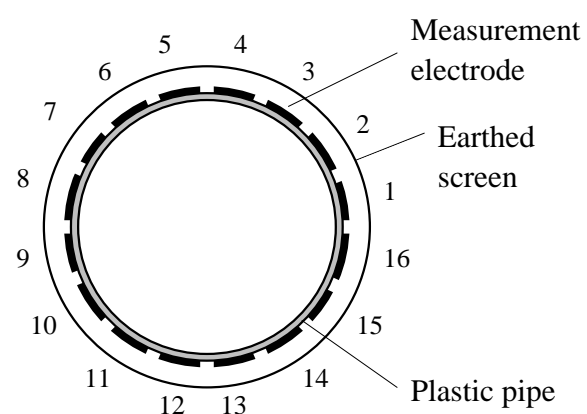
- Fundamental research into dielectric measurement and imaging
- Personnel plastic landmine detection
- Nano-magnetic flow imaging
- Capacitance/optical dual-modality tomography.

Knowledge learned

- Sensors for measurement of moisture diffusion in power cables with oil-impregnated paper
- Nano transformer oil
- Ferrofluids for enhancement of image contrast of MRI.

Outcome

- Joint publication: Zachary M Thomas, Markus Zahn and Wuqiang Yang, Sensors for measurement of moisture diffusion in oil-impregnated-paper power cables, *Sensors and their Applications XIV*, 11-13 Sept. 2007, Liverpool, UK
- Distinguished Visiting Fellowship for Professor Markus Zahn from MIT to visit the UK in Dec. 2007 to discuss further about collaboration
- Established relationship with Professor Liang-Shih Fan at Ohio State University, Professor Sankaran Sundaresan at Princeton University and Professor Thomas Budinger at UC Berkeley
- Planned joint research with Electrical Energy and Power Systems Group, School of Computer Science and Translational Imaging Unit at the University of Manchester.



Electrical capacitance tomography sensor

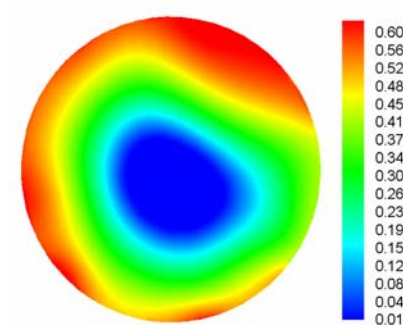


Image showing permittivity distribution