



**Facilitating SA-EU research collaboration in ICT for industrial applications and High resolution transmission electron microscopy (HRTEM)**

**AND**

**Promoting collaboration opportunities in related South African research and innovation programmes**

*Co-hosted by the South African Department of Science and Technology (DST) and the French Institute of Research for Development (IRD) under the SAccess and ESASTAP projects*

UNESCO Headquarters, Paris

Friday, 20 January 2011

**Programme**

**09:00 Opening session**

- Welcoming remarks *Mmboneni Muofhe, Chief Director: International Resources, DST*
- Presentation of the objective of the information session and expected outcomes by *Mamohloding Tlhagale, Deputy Director: Strategic Partnerships, DST*

**Facilitator:** *Mmboneni Muofhe, Chief Director: International Resources, DST*

**Session 1: ICT Research, Development and Innovation**

**09:30 South Africa's ICT R&D Strategy and key initiatives/ instruments to support collaboration**

*Presented by Isaac Maredi, Director: ICT and Service Industry, DST*

**10:00 Opportunities for SA-EU cooperation in SA ICT research and innovation programmes**

- SA ICT research and innovation programmes and collaboration opportunities for Europeans

*Presented by Dr Barend Taute, Meraka Institute, CSIR, South Africa*

- Discussion on instruments to promote improved European access to South African research and innovation programmes

**10:30 Short presentations (15 minutes each) by French and SA researchers on possible areas of collaboration in "ICT industrial applications – Smart Infrastructure, Sensor Networks"**

*Presentation titles to be confirmed*

- Prof Darelle van Greunen, School of ICT, Nelson Mandela Metropolitan University
- Prof. Barry Dwolatzky, Joburg Centre for Software Engineering (JCSE)
- Dr. Nathalie Mitton, researcher at INRIA Lille (National Institute for Research in Computer Science and Control)

*Wireless Sensor Networks : the new challenges*



**12:00 Prioritisation of areas of collaboration**

**Facilitator:** *Dr Hervé Guillard, senior researcher, scientific manager for Africa and Middle East, Department of International Affairs, INRIA*

**13:00 Lunch and Networking**

**Session 2: Nanotechnology: High Resolution Transmission Electron Microscopy (HRTEM)**

**14:00 South Africa's Nanotechnology Strategy**

*Presented by Joseph Molapisi, Director: Emerging Research Areas, DST*

**14:30 Opportunities for SA-EU cooperation in High resolution transmission electron microscopy**

- Nanotechnology collaboration opportunities

*Presented by Dr Robert Tshikudo, Mintek Nanotechnology Centre*

- Discussion on instruments to promote improved European access to South African nanotechnology research and innovation programmes

**15:00 Short presentations (15 minutes each) by French and SA researchers on possible areas of collaboration in "High Resolution Transmission Electron Microscopy (HRTEM)"**

- Prof Mary Gulumian – National Institute of Occupational Health  
*Nanotechnology Risk Assessment (HSE)*
- Prof Michael Lee – Nelson Mandela Metropolitan University  
*Electron Microscopy*
- Dr. Alain Fontaine, CNRS – CEA, Director, Fondation Nanosciences  
*International programs for research and education including the main features of the European school ESONN for nanosciences and nanotechnologies*
- Dr. Thierry Epicier – CNRS – INSA Lyon  
*Transmission Electron Microscopy and Atom Probe Network (Réseau METSA)*
- Dr. Jean-Luc Rouvière – Institute of Nanosciences and Cryogenics (CEA Grenoble):  
*Electron Microscopy at CEA-Grenoble and potential collaborations*

**16:30 Prioritisation and presentation of shortlist of identified areas of collaboration**

**Facilitator:** *Mamohlong Tlhogale, Deputy Director: Strategic Partnerships, DST*

**17:00 Closing Remarks by Co-hosts**



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## About the two themes:

### ICT Industrial Applications - Smart Infrastructure, Sensor Networks

Smart Infrastructure is about the optimisation of networked infrastructure such as the electricity grid, water, roads, rail, pipes, etc. These networks need to be monitored and dynamically controlled for optimised stability, service delivery, failure detection and security. The heart of "smartness" is provided by advanced sensing and control networks and distributed computational intelligence. Smart City infrastructure has the potential to address challenges of congestion, carbon footprint, maintenance and service delivery. Similar large opportunities exist in the telecommunications and mining sectors. Very large databases, high performance computing and visualization are some of the key supporting technologies.

Although mostly at development stages, South Africa is interested or involved in the following research areas: University of Pretoria is building a focused capability in Advanced Sensor Networks in collaboration with Meraka, Eskom is looking at implementation of Smart Grid technologies, City of Tshwane has a Smart Cities' project with IBM and Meraka is engaging with Korea on a Ubiquitous City concept demonstrator (not in place yet). It must be noted that these areas are rated high in South Africa's ICT RDI Roadmap, so European collaboration in these areas is important.

### High Resolution Transmission Electron Microscopy

The Department of Science and Technology has established a National Centre for High Resolution Transmission Electron Microscopy (HRTEM). The Centre's HRTEM system is among the latest of its generation. The specifications of its infrastructure and a suite of complementary instruments put it among the leading microscopy centres in the world. The establishment of this centre is in addition to some HRTEM systems and other electron microscopy systems placed at the country's universities and science councils. Most of these systems do not operate optimally owing to the lack of expertise to both operate and maintain them. As such there is a need to acquire expertise in the field of electron microscopy, particularly for the newly established Centre, for the optimal use of the country's acquired electron microscopy systems. It will be desirable if the partnership can result in the development of programmes for the training of the country's young microscopists.