



# The IET Seminar on Cognitive Radio and Software Defined Radios: Technologies and Techniques

Thursday, 18 September 2008  
The IET, Savoy Place, London, UK

## Programme

**09:00 Registration and Refreshments**

**09:30 Chairman's Welcome**

Anil Shukla  
Head - RF Operating Environments, *QinetiQ*, UK

### Session A: Applications, Needs and Benefits

**Chairman:** Anil Shukla  
Head - RF Operating Environments, *QinetiQ*, UK

**09:35 Research and Development on Cognitive Radio/Dynamic Spectrum Access Technologies**  
Dr. Hiroshi Harada, Director Ubiquitous Mobile Communications Group,  
*National Institute of Information and Communications Technology (NICT)*, Japan

**10:05 Exploiting SDR to help improve Multinational Military Interoperability**  
Rick Barfoot, *Chief*, Communications Identification Navigation and Networks Branch, NATO HQ C3  
Staff, *NATO*

**10:25 Optimising Usage of the 30% Of Spectrum below 15ghz Currently used for Defence in the UK**  
J Bradford, T Cook, D Ramsbottom, *PA Consulting Group*, UK

**10:40 Refreshments & Poster Session**

**11:15 White Space Coalition – The Story so far**  
Andrew Stirling, *Larkhill Consulting Limited*, UK

**11:35 Research and Development efforts in Software-Defined Radio (SDR) Cognitive Radio (CR) and Dynamic Spectrum Access (DSA) Technologies.**  
Keith Nolan, *Research Fellow*, Lloyd Institute, *Trinity College Dublin*, Ireland

**11:55 Implementation Challenges for UHF White Space Cognitive Systems**  
Adrian Payne, *Senior Scientist*, RF Systems & Architectures Group, UK

**12:15 Lunch & Poster Session**

### Session B: How do we meet the needs of CR and SDR?

**Chairman:** Professor Richard Langley,  
Head of Communications Group, *University of Sheffield*, UK

**13:15 UK Approach to Regulating Cognitive Radio devices**  
Professor William Webb, Head of R&D, *Ofcom*, UK

**13:45 Overview of Cognitive Radio and Cognitive Networks Research**  
Dr David Grace, Senior Research Fellow, *University of York*, UK

**14:05 Dynamic Frequency Broker and Cognitive Radio**  
T Maseng, T Ulversøy, *University of Oslo*, Norway

**14:25 Distributed Spectrum Detection Algorithms for Cognitive Radio**  
T J Harrold, P C Faris, M A Beach, *University of Bristol*, UK

- 14:40 Opportunistic Spectrum Allocation in Mobile Ad Hoc Networks**  
S Chantaraskul, K Moessner, *University of Surrey*, UK
- 14:55 Refreshments & Poster Session**
- 15:20 Software Defined Radios, Cognitive Radio and the Software Communications Architecture (SCA) in relation to Comms, Radar and ESM**  
E Jones, *SEA (Group) Ltd*, UK
- 15:35 Reconfigurable Antennas and Band Gap Materials**  
H J Lee, L Liu, K L Ford, R J Langley, *University of Sheffield*, UK
- 15:50 Reconfigurable Antenna Structure for a Wideband Cognitive Radio**  
A Muscat, J A Zammit, *University of Malta*, Malta
- 16:05 Combined Wideband and Narrowband Antennas for Cognitive Radio Applications**  
J R Kelly, E Ebrahimi, P S Hall, P Gardner, F Ghanem, *University of Birmingham*, UK
- 16:35 Open Forum and Question and Answer session**
- 17:00 Closing Remarks**
- 17:00 Reception sponsored by QinetiQ**

**Poster Session:**

**Cognitive Routing Metrics with Adaptive Weight for Heterogeneous Ad Hoc Networks**  
Y Liu, D Grace, *University of York*, UK

**Cyclostationary Spectrum Detection in Cognitive Radios**  
J Chen, A Gibson, J Zafar, *University of Manchester*, UK

**System Performance Enhancement using Power Path Gain Ratio for Cognitive Radio Systems with Diverse Transmission Ranges**  
J Chen, D Grace, P Mitchell, *University of York*, UK

**Single-Antenna Selection for MISO Cognitive Radio**  
J Zhou, J Thompson, *University of Edinburgh*, UK

**Implementation of Network Listen Modem for WCDMA Femtocell**  
J Edwards, *picoChip Designs Ltd*, UK

**Cognitive Radio based Spectrum Assignment for Heterogeneous Multicast Terrestrial Communication Systems with Different Transmission Rate Requirements**  
M Yang, D Grace, *University of York*, UK

**Performance of a Spectrum Sharing Game with a Path Gain Ratio based Cost Parameter**  
P Likitthanasate, D Grace, P D Mitchell, *University of York*, UK

**Spectrum Occupancy Measurement and Analysis for Cognitive Radio**  
T J Harrold, A H C Green, M A Beach, *University of Bristol*, UK

**Cognitive Radio Spectrum Sharing Schemes with Reduced Spectrum Sensing Requirements**  
T Jiang, D Grace, Y Liu, *University of York*, UK

**Time Series Arima Model of Spectrum Occupancy for Cognitive Radio**  
Z Wang, S Salous, *Durham University*, UK