Radio Technology SIG
'Wireless in the built environment'
2nd December 2015
Hosted by Bird & Bird and sponsored by ROHDE&SCHWARZ

This SIG is championed by Brian Collins, **BSC Associates,** Diego Giancola, **PA Consulting,** John Haine, **University of Bristol** and Gerald Miaille, **Qualcomm Technologies Int.**

Venue: Bird & Bird LLP, 15 Fetter Lane, London, EC4A 1JP

AGENDA

12:00	Registration and networking with lunch
13:00	Introduction to Radio Technology SIG from John Haine**, University of Bristol**
13:10	Welcome from event host, **Bird & Bird**
13:20	Welcome from event sponsor, **Lindsay Harris, Rohde & Schwarz**
13:30	**Session chaired by SIG Champion, Diego Giancola, PA Consulting** **'Wireless friendly energy efficient buildings'** **Richard Langley,** Professor, **University of Sheffield** This talk will look at the conflicts for creating wireless and energy efficient buildings. Models for signal propagation within a building will be compared. There will be a focus on reconfiguring buildings for wireless signal propagation and active techniques to achieve this. A case study on a Victorian house will be included.
13:50	Q&A
13:55	**'Wireless communications and sensing in eHealth'** **Rob Piechocki**, Senior Lecturer, **University of Bristol** Public health systems in most developed countries face unprecedented financial pressures. For example, in the UK, ageing populations and spiralling costs of chronic conditions approach 70% the health budget. A completely different approach to the delivery of health services is needed to maintain financial sustainability. An expensive and high precision data capture in a hospital setting will need to be complemented by long term and low cost monitoring. In this talk I will explain the role low cost wireless ultra-low power sensors can pay in residential eHealth systems.
14:15	Q&A
14:20	**'The impact of new energy efficient materials on wireless propagation into homes'** **Martin Ganley,** Director, Smart Homes and Buildings, **BRE** Building entry loss is an increasingly important parameter in link planning but is poorly characterised, partly due to the wide variability of building types. Data relating to domestic buildings is particularly poorly represented. In addition, the increased use of metallic-coated energy-efficient materials is likely to cause increased building losses. This recent study looks at the impact of these new materials and the variability due to different measurement methods.
14:40	Q&A
14:45	Refreshments and networking
15:15	**Session chaired by SIG Champion, John Haine, University of Bristol** **'Building-friendly wireless vs. wireless-friendly buildings'** **Nick Johnson,** CTO and Head of PLM**, ip.access** Trends in building construction are tending to make them less and less friendly to traditional wireless coverage. The LEED standard, which is more and more the touchstone for modern building construction focuses on eco-friendliness and heat conservation. It's true to say that, what's good at keeping heat in, is also good at keeping radio out. Good news for in-building small cells, right? Well it ought to be, but rather than investing in multi-operator licensed radio small cells, end-users are voting with their feet with Wi-Fi as the default in-building wireless solution. Recent forecasts from Mobile Experts are showing promising growth in small cell shipments, but there's a long way to go before small cells overtake WiFi as the in-building wireless technology of choice. So, on the face of it, buildings are not particular friendly to small cells, and the only building friendly wireless is WiFi. But is that a sustainable future? Building owners are desperate for cellular coverage, and would take operator managed solutions, but can't live with single-operator managed solutions. What's next for in-building small cells, to make them properly building- and building-owner friendly?
15:35	Q&A

15:40	**'Ensuring building design and materials support health services'** **Stephen Lowe,** Knowledge Transfer Manager, **The Knowledge Transfer Network, Modern Built Environment** Wireless is an essential element of many health and personal alarms systems. These have to work at all times and in every part of the building. Is there a conflict between the materials used to maximise building efficiency and the propagation of wireless?
16:00	**Q&A**
16:05	Panel session with all speakers - chaired by **John Haine, University of Bristol**
16:35	**Drinks reception**
17:15	**Event closes**

With the permission of the speakers, presentations will be loaded to the CW website on the day following the event

Organiser

CW (Cambridge Wireless Ltd)

CW is the leading international community for companies involved in the research, development and application of wireless and mobile, internet, semiconductor and software technologies. With 400 members from major network operators and device manufacturers to innovative start-ups and universities, CW stimulates debate and collaboration, harnesses and shares knowledge, and helps to build connections between academia and industry. CW's 19 Special Interest Groups (SIGs) provide its members with a dynamic forum where they can network with their peers, track the latest technology trends and business developments and position their organisations in key market sectors. CW also organises the annual Future of Wireless International Conference and Discovering Start-Ups competition along with other high-quality industry networking events and dinners. With headquarters at the heart of Cambridge, UK, CW partners with other international industry clusters and organisations to extend its reach and remain at the forefront of global developments and business opportunities. For more information, please visit www.cambridgewireless.co.uk

Sponsor

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Host

Bird & Bird

Bird & Bird is an international law firm, with a rare and invaluable grasp of strategic commercial issues. We combine exceptional legal expertise with deep industry knowledge and refreshingly creative thinking, to help clients achieve their commercial goals. They have over 1100 lawyers in 26 offices across Europe, the Middle East and Asia, as well as close ties with firms in other parts of the world. There are three key things that set Bird & Bird apart from their competitors: their deep industry knowledge, excellence in client service and international reach. These differentiators are all underpinned by our commitment to clarity, originality and passion. For more information please visit www.twobirds.com

SIG Champions

Brian Collins, BSC Associates

Brian has designed antennas for applications including radio and TV broadcasting, base stations, handsets and consumer products, and has operated his own consultancy firm for the last 12 years. He has published more than 70 papers on antenna topics and contributed chapters to several recent textbooks. He operates a small consultancy company, chairs the Antenna Interface Standards Group and is an Honorary Visiting Professor in the School of Electronic Engineering and Computer Science at Queen Mary, University of London. For more information please visit www.bscassociates.co.uk

Diego Giancola, PA Consulting

Diego has spent his career in radio systems R&D and modem design in the wireless communication sector, from 2G to the latest 4G evolutions. His research interests lie in multi-antenna systems and novel signal processing and architectures for radio signals. He currently co-runs PA's signal processing team and leads the research activities in LTE evolution and 5G landscaping. Diego has a first degree in telecommunication engineering and a doctorate in electronics and communication engineering from Politecnico di Milano. For more information please visit: www.paconsulting.com

John Haine, University of Bristol

John Haine has spent his career in the electronics and communications industry, working for British Telecom, Marconi, PA Consulting, and with start-ups including Cognito and Ionica. His technical background includes R&D in radio circuitry and microwave circuit theory; and the design of novel radio systems for cordless telephony, mobile data, and fixed wireless access. He has led standardisation activities in both the latter areas in ETSI, and contributed to WiMax.

In 1999 he joined TTP Communications working on research, technology strategy and M&A activities; and after the company's acquisition by Motorola became Director of Technology Strategy in Motorola Mobile Devices. After leaving Motorola he was CTO Enterprise Systems with ip.access Limited, the leading manufacturer of GSM picocells and 3G femtocells. In early 2010 he joined Cognovo Limited, which was acquired by u-blox AG in 2012. In u-blox John worked on RF platform strategy for future wireless modules. He led u-blox' involvement in a major 3GPP standards activity on low complexity cellular communications for the Internet of Things, and the company's early development of devices for trials and demonstrations. Now retired from u-blox he is Royal Academy of Engineering Visiting Professor at Bristol University, focusing on Radio Systems for the Internet of Things.

John has a first degree from Birmingham (1971) and a PhD from Leeds (1977) universities. He is a member of the IET and IEEE and serves on the Cambridge Wireless Board. For more information please visit www.bristol.ac.uk

Gerald Miaille, Qualcomm Technologies Int.

Gerald Miaille has spent his entire career in the semiconductor industry, designing RF and mixed signal ICs for various wireless technologies including WLAN, BlueTooth, NFC, FM, SoftGPS as well as Cellular radios. He has developed novel ideas, which have seen patents as well as an engineering award appended to his name. Gerald currently works for Qualcomm Technologies Int. as a director of RF/Analog IC design. He leads two design centres which are developing state of the art wireless connectivity IC solutions for standalone as well as Combo chips. For more information please visit: www.qualcomm.com

Speakers

Martin Ganley, BRE

Dr Martin Ganley is the Director of Smart Homes and Buildings at BRE, the Building Research Establishment. He is also Director for a number of business areas including Fire Detection, Security, Microgeneration and ISO Auditing. Before joining BRE 4 years ago Martin managed a radiocommunications consultancy business which delivered work across a range of technologies including 2G, 3G, LTE, WiMAX, WiFi, WSD, UWB, DVB-T, DVB-H, DAB, Satellite, Fixed Links, Air Traffic Control and Maritime Radar, PMR, PMSE and Tetra. For more information visit www.bre.co.uk

Nick Johnson, ip.access

Nick founded ip.access in 1999. He established ip.access in GSM, then took their technology into partnership with Cisco and the world's largest W-CDMA residential small cell deployment with AT&T.

Leading the Product and Technology group to create, position and drive ip.access' small cell products to market, Nick also chairs the Radio and Physical Layer working group of the Small Cell Forum and is the Innovation Architect in the Horizon2020/5G-PPP project SESAME.

Nick has a PhD in Microwave Scanned Imaging Techniques from University College, London, and an MA in Physics from the University of Cambridge. For more information visit www.ipaccess.com

Richard Langley, University of Sheffield

Richard Langley has BSc and PhD degrees from the University of Kent. After spending some time working on communications satellites at Marconi Space Systems in the 1970s he became an academic at the University of Kent in 1979. Richard was Honorary Editor of IEE Proceedings – Microwaves, Antennas and Propagation from 1995-2003.

In 1997 he founded the European Technology Centre for Harada Industries Japan, the world's largest supplier of automotive antennas. After successfully building up the technology and business he rejoined academic life in 2003. Professor Langley has been Head of the Communications Research Group in the EEE Department at the University of Sheffield since 2005 and the group has 15 permanent academic staff and over 100 researchers. His main research is in the fields of automotive antennas, propagation in the built environment, frequency selective surfaces, electromagnetic band gap materials and applications, multi-function antenna systems and reconfigurable antennas.

He initiated the setting up of the Wireless Friendly Building Forum in 2009 to address the problems of wireless signal propagation in buildings and the built environment. Richard has published over 350 papers in international journals and conferences and is a past Chair of the IET Antennas and Propagation Professional Network. For more information please visit www.sheffield.ac.uk

Stephen Lowe, The Knowledge Transfer Network

Stephen joined the KTN twelve years ago from the Technical Strategy Group of Virgin Media. He has a history of innovation running from the development of Hall effect devices, LEDs and Masers for the first trans-Atlantic television satellite Telstar while at Mullard Research Labs, through the introduction of digital video technologies to the BBC and on to the US broadcast equipment manufacturer Ampex. In 1993 he was project director for the building of the new ITV franchise in the Southwest, Westcountry Television.

After the channel went on air he moved to Eurobell, a cable television, telephone and broadband operator. He brought the network in Devon into service and later developed networks in Sevenoaks and Moscow. He led teams in European Union funded research projects on microwave broadband systems before moving on to the Technical Strategy group of Virgin Media. He chairs the Broadband Wireless Association, an industry group set up in 1992 to promote UK and European providers of microwave broadband services.

Stephen moved on to the newly formed Digital Communication Knowledge Transfer Network that later became the ICT KTN. He is now a member of the Built Environment team within the restructured KTN. His portfolio includes designs for future Urban Living and Infrastructure with interests in telecommunications, water, oil, gas and rail network design and their security and resilience. For more information visit www.ktn-uk.co.uk

Rob Piechocki, University of Bristol

Dr Robert J. Piechocki is an Associate Professor (Senior Lecturer) in Advanced Wireless Access. His research interests span the areas of Statistical Signal Processing, Information and Communication Theory, IoT, Wireless Networking, Body and ad-hoc networks, Ultra Low Power and Vehicular Communications. He has published over 100 papers in international journals and conferences and holds 13 patents in these areas. Robert is leading the development of IoT solutions for the Sphere project (UK largest eHealth project funded by EPSRC). Robert is also a PI for the VENTURER project (UK flagship project investigating Autonomous Vehicles) for which he is also leading the development of ultra-reliable wireless connectivity solutions. For more information visit www.bristol.ac.uk