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Monday, March 6, 08:30 - 12:00

W1: Workshop Session I: Battle of the ModRecs

"Battle of the ModRecs" is a live competition-like event. A single open-air transmit system based on, but not identical to, the Entrance Hurdles for the DARPA Spectrum Collaboration Challenge (https://spectrumcollaborationchallenge.com/documents/) will be set up to generate and cycle through various modulations. Each participant will set up their system to receive the signals over the air and perform their modulation recognition ("ModRec") algorithms. The Battle of the ModRecs seeks to explore the field of modulation recognition to better understand how to approach these problems and, most importantly, to compare results.

The Battle is separated into a workshop and a live over-the-air event. The workshop will take place during the DySPAN workshop day of March 6. The Battle will take place between March 7 and 8 during the technical conference. During conference hours, the transmitter will operate on a pre-set frequency and bandwidth which will be dictated by an experimental FCC license. The competition signal generator will transmit certain types of modulated signals among a frequency-time grid with defined channel bandwidths and time slot durations. Battle participants will capture the signals and identify the modulation for as many signals as possible in the established grid.

Monday, March 6, 13:30 - 17:30

W2: Workshop Session II: The Blockchain Bandwagon - The Spectrum Perspective

Blockchain can be considered as much an ideology as it is a technology. The venture capitalist and software developer Marc Andreesen considers blockchain to be as important and revolutionary as the Internet. It is therefore reasonable to expect that aspects of this technology and the ideology have the potential to underpin concepts, frameworks, regulations, and economics in the world of dynamic spectrum access.

This workshop will focus on the role of the blockchain in the spectrum world. We see this workshop as a mixture of tutorial, workshop and brainstorm for future DySPAN conferences - hence it can in principle be consider as a dual function submission.

Blockchain Opportunities in the Citizens Broadband Radio Service Spectrum Sharing Framework: A Sharing Economy View.....N/A
Seppo Yrjölä (Nokia innovation Steering, Finland)

Blockchain Alternatives for Spectrum Policy Distribution.....N/A
Martin Saint (Carnegie Mellon University & University of Colorado Boulder, Rwanda); Timothy X Brown (Carnegie Mellon University, Kigali, Rwanda)

Networking Break

The Blockchain and Spectrum Nirvana.....N/A
Kevin Werbach (University of Pennsylvania, USA)

Spectrum-jail and Time Limited Lease Approaches with the Potential Use of Block-chain Technology in Spectrum Sharing Regime.....N/A
Amer Malki (University of Pittsburgh, USA)

Tuesday, March 7, 08:30 - 10:15

KP1: Keynote and Panel Session I

New Policy Approaches to Spectrum Sharing

Bio: Kathleen Grillo is senior vice president and deputy general counsel, public policy and government affairs, with responsibility for Verizon's public policy, federal and state legislative and regulatory affairs, antitrust and privacy, and strategic alliances. Ms. Grillo previously served as Verizon's senior vice president, federal regulatory and legal affairs. In that role, she directed the company's legal and public policy positions before federal government agencies on a wide range of communications issues, including spectrum policy and Internet governance.

Ms. Grillo joined the company in June 2002. She joined the federal regulatory affairs organization in 2003, where she represented Verizon at the Federal Communications Commission.

Prior to joining the company, Ms. Grillo was in private practice at Williams & Connolly LLP, a Washington, D.C.-based law firm. She was a law clerk to Judge Harold H. Greene of the U.S. District Court for the District of Columbia. Ms. Grillo earned a B.A. in English, with distinction, from the University of Virginia and a J.D. from the University of Virginia School of Law, where she served as the Essays Editor for the Virginia Law Review.

Tuesday, March 7, 10:30 - 12:00

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Adriana B. Flores and Edward W. Knightly (Rice University, USA)

Tuesday, March 7, 13:30 - 15:00

PS1: Policy Session I: Governance and Licensing

Tuesday, March 7, 15:30 - 17:00

TS2: Technical Session II: 2.4 GHz and Above

Paavola (Turku University of Applied Sciences, Finland); Marko Mäkeläinen (CWC, Finland); Tuomo Hänninen (University of Oulu, Finland)

Tuesday, March 7, 17:00 - 18:00

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Wednesday, March 8, 08:30 - 10:15

KP2: Keynote and Panel Session II

Paving the Path to Three Tier Spectrum Sharing

Bio: Manuel Uhm is the Director of Marketing at Ettus Research, a National Instruments company, the leader in Software Defined Radio platforms. Manuel has business responsibility for the Ettus USRP (GNU Radio open source-based), NI USRP (LabVIEW-based) and NI ATCA portfolios. As such, he has responsibility for portfolio management including product strategy, roadmaps, and pricing. Manuel is also the Chair of the Board of Directors of the Wireless Innovation Forum (formerly the SDR Forum). He has served on the Board since 2003 in various roles including Chair of the Markets Committee, Chair of the User Requirements Committee, Chief Marketing Officer and Chief Financial Officer.

Previously, Manuel Uhm was the Vice President of Marketing at Coherent Logix, where he was responsible for all marketing and sales activities related to their 100-core DSP product portfolio. Prior to that, Manuel was the Marketing Director of Mobile for MIPS Technologies where he was responsible for leading MIPS' penetration into the mobile industry, including applications processors, LTE UE baseband processors and mobile connectivity processors. Prior to joining MIPS, Manuel was the Director of Wireless Communications for Xilinx, the leading supplier of programmable logic devices, where he grew the wireless business into Xilinx's #1 end market.

Talk: Paving the Path to Three Tier Spectrum Sharing

Spectrum scarcity has been a hot topic as spectrum auctions worldwide have brought in unprecedented amounts of money into treasuries. However, most of the available spectrum worldwide has already been allocated on an exclusive basis. Since spectrum is a limited resource, the future of spectrum relies on better utilization - thus the impetus behind spectrum sharing. The FCC and the Wireless Innovation Forum (WINNF) are leading the way by pioneering a three-tier model of spectrum sharing between maritime radar (the incumbent) and commercial data services in the 3.5GHz band, also known as the Citizens Broadband Radio Service (CBRS). This presentation will review CBRS, the three-tier model, and the role of WINNF in defining the technical specifications.

Wednesday, March 8, 10:30 - 12:00

PS2: Policy Session II: Interference Management

SC1: Spectrum Challenge Session I

and Kapil Dandekar (Drexel University, USA); Sean Mason (Lockheed Martin Advanced Technology Laboratories, USA)

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Thursday, March 9, 10:15 - 12:00

KP3: Keynote and Panel Session III

Unlocking New Spectrum Assets for 5G

Bio: Klaus Doppler joined Nokia Research Center in 2002. He has contributed to Nokia's 4G, 5G and Wi-Fi research in multiple roles. Currently, he is heading the Connectivity Lab in Nokia Bell Labs and his research focus is on indoor networks. In the past, he has been responsible for the wireless research and standardization (4G, 5G, Wi-Fi) in Nokia Technologies, incubated a new business line, contributed to Nokia's radio technology vision and has led various research projects. He has pioneered research on Device-to-Device Communications underlaying LTE networks. Klaus received his PhD. from Helsinki University of Technology, Finland in 2010 and his MSc. in Electrical Engineering from Graz University of Technology, Austria in 2003. He has more than 75 pending and granted patent applications and he has published 30 journal and conference publications and book chapters and received several inventor awards at Nokia.

Talk: Unlocking New Spectrum Assets for 5G