The 2022 Radio & Wireless Week (RWW) will jointly host the 2022 Radio and Wireless Symposium (RWS) and the 22nd IEEE Topical Meeting on Silicon Monolithic Integrated Circuits (SiRF2022). Topical meetings held in parallel will provide more focused sessions in the areas of RF Power Amplifiers (PAWR), Wireless Sensors and Sensor Networks (WiSNet), and Space Hardware and Radio (SHaRC). **Technical Lectures will be complimentary to RWW registration**, presented by experts in selected fields. The syllabus contents of these sessions can be found below.
For more information, please contact Juan A. Becerra (jabecerra@us.es) or visit http://www.radiowirelessweek.org/

RWS SiRF PWR WiSNet SHaRC

Mobile Broadband Connectivity in 6G: What Needs to be Improved?

Prof. Emil Björnson
Linköping University, Sweden
Tuesday, 18 January 2022, 13.30-15:30

- Fundamentals of cellular networks and mobile broadband
- 5G: From vision to reality
- Multiplexing methods: Time, frequency, and space
- Frequency bands: Implications, pros and cons
- 6G visions and goals for mobile broadband
- 6G enabling technologies for peak rates, uniform data rates, and massive multiplexing

Wearable Systems and Antennas for Wireless Communication 5G, IOT and Medical Systems

Dr. Albert Sabban
Ort Braude College, Israel
Wednesday, 19 January 2022, 13.30-15:10

- Wearable systems and antennas and technologies
- New wideband wearable systems and antennas
- Passive and active wearable systems and antennas. Passive and active Compact wearable antennas
- Antennas S11 Variation as Function of Distance from Body
- Tunable systems and antennas
- Applications of wearable systems and antennas

Microwave Sensing in the Modern Society

Kamel Haddadi
University of Lille, France
Wednesday, 19 January 2022, 15.40-17:20

- Review of Non Destructive Testing (NDT) Methods
- Fundamentals of Wave to Material interaction
- RF and Microwave instrumentation for MNDT&E applications
- The Six-Port concept for low-cost MNDT&E applications
- MNDT&E applications: free-space radar & liquid sensing
- Bringing MNDT&E at the nanoscale

Radio Transmitters and DPD-based Linearization: Fundamentals and Latest Advances

Prof. Mikko Valkama and Dr. Lauri Anttila
Tampere University, Finland
Wednesday, 19 January 2022, 13.30-15:10

- Basic radio transmitter types and requirements
- Nonlinear distortion fundamentals and quantification
- Quantifying transmitter performance
- Nonlinear distortion behavioral models. Basics of PA identification and DPD parameter learning
- More advanced DPD models and principles: piecewise DPD and multiband DPD
- DPD for MIMO/multiantenna transmitters

DPD and Sparse Estimation

Prof. Juan A. Becerra and Prof. María J. Madero
Universidad de Sevilla, Spain
Wednesday, 19 January 2022, 15.40-17:20

- Basics of nonlinearities.
- Volterra series and digital predistortion (DPD). Fundamentals of Volterra models: the curse of dimensionality, regression
- Model structures: memoryless, memory polynomial (MP), generalized MP (GMP), impact of I/Q impairments. Even and odd order terms. Direct learning (DLA) architecture
- Coefficient selection techniques: sparse signal processing
- The doubly orthogonal matching pursuit (DOMP) algorithm