



Plenary Session: 5G and Beyond

2nd Annual Transatlantic Symposium on ICT and Policy

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**ICT Policy, Research and Innovation
for a Smart Society**

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PICASSO 5G Expert Group



Dr Gerhard Fettweis – Professor, Vodafone Chair, TU Dresden, Germany



Mr Leif Johansson – Principle Engineer, National Instruments, Sweden



Dr Deborah Crawford – Vice President for Research, George Mason University, US



Dr Olav Queseth – Project coordinator for METIS-II, Ericsson, Sweden



Dr Amitava Ghosh – Nokia Fellow and Head of Small Cell Research, Nokia, US



Mr David Kennedy – Director, Eurescom, Germany



Dr Chengshan Xiao – Program director, NSF, US



Dr Matti Latva-Aho – Professor, University of Oulu



Dr Meryem Simsek – Senior scientist, ICSI/Berkeley, US

Proposed Themes for EU-US Collaboration by 5G Expert Group

- General Strategy: technologies that have niche market shares yet will have strong societal impact
- Technology themes for research collaboration
 - Connecting the last billion – ultra large cell
 - mmWave technology at carrier frequencies beyond 100 GHz
 - Narrowband IoT devices for goods tracking in global supply chain management
 - Ultra-wide band RF IC at mmWave frequency
 - V2X for regional niche markets
 - Satellite communications for broadband access in oceans
 - Spectrum farming

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- Moderator: **Gerhard Fettweis**, Chair of PICASSO 5G Expert Group, TU Dresden, Germany
- Panellists:
 - **Matti Latva-aho**, University of Oulu, Finland
 - **Theodore Rappaport**, NYU Wireless, US
 - **Amitava Ghosh**, Nokia Bell Labs, US
 - **David Corman**, Program Director, NSF, US

Some 6G Challenges

- True network architecture for distributed/hierarchical
 - Security, e2e
 - Privacy
 - AAA (authentication, authorization, accounting)
 - Storage
 - Computing (MEC and more)
 - Learning
- New PHY reaching towards 100Gb/s
 - New modulation (OFDM “dead” for these rates)
 - Frequencies: <1GHz, 6-10GHz, >100GHz
- Tactile Internet 2.0
 - True e2e 1ms latency
 - True network slicing: addressing plenty of niche markets
- Connecting the planet:
 - ER cells with 100km range
 - Satcom?