



6G-RIC
Research and
Innovation Cluster

@ **Berlin 6G Conference 2025**

Sessions

Demos

6G Conference 2025 —Sessions Tuesday, July 1st

Time / Room

Title

14:00-15:30 / C01

6G on the Horizon: Converging Towards a Practical 6G System Architecture

Session Chair: Gerald Kunzmann, Admela Jukan

14:00-15:30 / A03

ICAS in Cellular Infrastructure and Sidelink

Session Chair: Silvio Mandelli and Oliver Blume

6G-RIC Panelist: Slawomir Stanczak (Fraunhofer HHI)

14:00-15:30 / A05

Sub-THz Semiconductor Technologies, Photonic and Microwave Circuits and Systems

Session Chair: Ramez Askar, Michael Peter

6G-RIC Talks: Corrado Carta – „SiGe BiCMOS ICs and Modules for Resilient Communication and Sensing at D-Band“

14:00-15:30 / A06

Digital Twins in 6G: Connecting the Digital and Physical Worlds

Session Chair: Ehsan Tohidi, Patrick Agostini

6G-RIC Talks: Slawomir Stanczak (Fraunhofer HHI) - „From Digital Twins to Automated Networks“

6G Conference 2025 —Sessions Tuesday, July 1st

Time / Room	Title
16:00-18:00 / A05	<p><u>Sub-THz Channel Measurements and Modeling for 6G and Beyond</u> Session Chairs: Thomas Kürner, Michael Peter, Ramez Askar 6G-RIC Talks: Lucas Cândido Ribeiro (TU Braunschweig): “Channel Measurements and Modeling in THz Bands” Alper Schultze (Fraunhofer HHI): "Sub-THz channel characterization for industrial environments”</p>
16:00-18:00 / A06	<p><u>Germany’s Open RAN Vision</u> Session Chair: Ehsan Tohidi , Slawomir Stanczak 6G-RIC Talks: Martin Kasparick (airpuls) - “Potentials and Challenges of Open Modular Private Networks” Kenan Turbic (Fraunhofer HHI) - “Open RAN – Research Testbed Development”</p>
16:00-18:00 / A08	<p><u>Architecting the Future: Exploring 6G Architectural Innovations</u> Session Chairs: Gerald Kunzmann, Admela Jukan</p>

6G Conference 2025 — Sessions Tuesday, July 1st

Time / Room

16:00-18:00 / A05

Title

Sub-THz Channel Measurements and Modeling for 6G and Beyond

Session Chairs:

Thomas Kürner, Michael Peter, Ramez Askar

6G-RIC Talks:

Lucas Cândido Ribeiro (Technische Universität Braunschweig):

“Channel Measurements and Modeling in THz Bands: The Efforts of the ETSI ISG THz towards Standardisation and the first recommended ABG Channel Model”

Alper Schultze (Fraunhofer HHI):

"Sub-THz channel characterization for industrial environments: Measurements at 160 GHz in a production hall”

6G Conference 2025 —Sessions Wednesday, July 2nd

Time / Room

Title

11:00-12:30 / A04

6G RAN Technology Components

Session Chair: Michael Meyer

6G-RIC Talks: Renato Cavalcante (HHI) – „Scalable resource allocation and energy efficiency for distributed MIMO“

11:00-12:30 / A05

Quantum Technologies for 6G and Beyond

Session Chair: Janis Nötzel, Igor Bjelaković, Henrike Wissing

14:00-15:30 / A06

German Perspective on 6G – Use Cases, Technical Building Blocks and Requirements

Session Chair: Norman Franki, Falko Dressler

6G Conference 2025 —Sessions Wednesday, July 2nd

Time / Room

Title

16:00-18:00 / A01

6G Transceiver Realisations -From Concept to Implementation

Session Chair: Friedel Gerfers, Thomas Zwick

6G-RIC Talks: Corrado Carta – „SiGe BiCMOS Circuits for Integrated Beamsteering Transceivers over the Full D-Band “

16:00-18:00 / A03

6G Transfer & Innovation

Session Chair: George Yammine

6G-RIC Talks: Jonathan Ott (IIS) – „AI for Spatially aware Radio Networks – The challenge of label scarcity“

16:00-18:00 / A05

Extreme MIMO in 6G – Challenges and Opportunities

Session Chair: Giuseppe Caire, Gerhard Fettweis

6G-RIC Talks: Robert Schober (FAU, Erlangen): „Flexible Antenna Systems“

6G Conference 2025 —Sessions Thursday, July 3rd

Time / Room

Title

09:00-12:30 / A01

Challenges of 6G for optical access and in-building networks

Session Chair:

Volker Jungnickel

6G-RIC Talks:

Annika Dochhan (CAU) – „Fiber Monitoring and Sensing in Passive Optical Networks“

Volker Jungnickel (HHI) – „Towards Reliable In-building Networks“

09:00-12:30 / A05

Reconfigurable Intelligent Surfaces

Session Chair:

Aydin Sezgin, Robert Schober, Ehsan Tohidi

6G-RIC Talks:

Eduard Jorswieck (TU Braunschweig) - “Intelligently Learning to Reconfigure”

Hossein Rezaei (IIS), “Hardware Limitations and Optimization Approach in 1-Bit RIS Design at 28GHz”

Andreas Benzin (massive beams) – “Near-Field Fed RIS based Analog Beamforming for Giga-MIMO”

6G Conference 2025 — Sessions Thursday, July 3rd

Time / Room

Title

11:00-12:30 / C01

6G and Sustainability

Session Chair:

Stefan Wunderer, Wolfgang Heinrich

6G-RIC Talks:

Ehsan Tohidi (Fraunhofer HHI) - „Load-adaptive optimization of mobile networks for energy saving”
Wolfgang Heinrich (FBH), „Carbon footprint of a D-band link – status and benchmarking”

11:00-12:30 / A03

Energy-Efficient Coding for 6G

Session Chair:

Gianluigi Liva

6G-RIC Talks:

Gianluigi Liva (DLR) - “Ultra-reliable Low-Latency Communications in 6G: Codes and (New) Bounds”

11:00-12:30 / A06

Standardization and Technologies for High Data Rate mmW and Sub-THz 6G Communications

Session Chair:

Andreas Stöhr, Ingmar Kallfass

6G-RIC Talks:

Thomas Kürner (TU Braunschweig): „What are the Applications for THz Communications?”

6G Conference 2025 —Sessions Thursday, July 3rd

Time / Room

Title

11:00-12:30 / tba

6G and Sustainability

Involved Projects:

6G-RIC

Session Chair:

Stefan Wunderer, Wolfgang Heinrich

Panelists:

Stefan Wunderer, Ehsan Tohidi, Wolfgang Heinrich

6G-RIC Talks:

Stefan Wunderer (NOKIA) - “Sustainable Microelectronics Pave The Way To 6G”

Ehsan Tohidi (Fraunhofer HHI) - „Load-adaptive optimization of mobile networks for energy saving”

Wolfgang Heinrich (FBH), „Carbon footprint of a D-band link – status and benchmarking”

11:00-12:30 / A03

Energy-Efficient Coding for 6G

Involved Projects:

6G-RIC, 6G Life, Open6G hub

Session Chair:

Gianluigi Liva (DLR, 6G-RIC)

6G-RIC Talks:

G. Liva (DLR, 6G-RIC) - “Ultra-Reliable Low-Latency Communications in 6G: Codes and (New) Bounds”

11:00-12:30 / A05

Reconfigurable Intelligent Surfaces 2

Involved Projects:

6GEM, 6G-RIC, 6G-LICRIS

Session Chair:

Aydin Sezgin, Robert Schober, Ehsan Tohidi

6G-RIC Talks:

Andreas Benzin – “Revisiting Cell-Free Massive MIMO Versus Small Cells”

6G Conference 2025 — Sessions Thursday, July 3rd

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14:00-15:30 / A01

Higher-Layer Aspects of 6G Technology

Session Chair:

André C. Drummond, Zoran Utkovski

6G-RIC Talks:

Osman Basaran (TU Berlin) – “AI-Native Architecture Design for 6G “

Giuseppe Caire (TU Berlin) - ” Fairness Scheduling and Fronthaul Optimization”

Thomas Bauschert (TU Chemnitz) – “Fronthaul Dimensioning for Cell-Free User-centric Massive MIMO”

Max Franke (TU Berlin) - “Topology considerations for cell-free fronthaul”

14:00-15:30 / A03

Sensing Technologies for Health in 6G Networks

Session Chair:

Johannes Dommel, Slawomir Stanczak

6G-RIC Talks:

Shweta Devani (HHI) “Cooperative Sensing for Contactless Beat-to-Beat Hemodynamic Monitoring”

14:00-15:30 / A04

AI-Assisted Communications

Session Chair:

Eduard Jorswieck, Stephan Ten Brink, Aydin Sezgin

6G-RIC Talks:

Renato Cavalcante (HHI) – “Hybrid Model- and Data-Driven Solutions for Radio Access Networks”

6G Conference 2025 —Sessions Thursday, July 3rd

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14:00-15:30 / A05

Optical Access and Transport for 6G

Session Chair: Colja Schubert, Johannes Karl Fischer

6G-RIC Talks: Annika Dochhan (CAU) – „6G optical access network for JCAS in smart city environments“
Mahtab Aghaeipour Kolyani (HHI) – „Photonic Neuromorphic Processors“

14:00-15:30 / A06

Semantic/Goal-Oriented Communications in 6G

Session Chair: Andrea Munari, Zoran Utkovski

6G-RIC Talks: Slawomir Stanczak – „Semantic Communication and Distributed Intelligence for Collaborative Robotics“
A. Munari (DLR) / Z. Utkovski (HHI) – „Semantic-Aware Communication for IoT and Edge Intelligence“

14:00-15:30 / A08

Wireless Access Protocols for 6G TN/NTN

Session Chair: Federico Clazzer

6G-RIC Talks: Marcel Mross (TU Braunschweig) – „Performance Bounds for Asynchronous Unsourced Multiple Access“

6G Conference 2025 — 6G-RIC Demos

Sub-THz Mobile Access

- 240GHz Line-of-Sight MIMO Link Demo
- High-speed Digital-to-Analog Converter
- Hetero-Integration for sub-THz transceivers
- Non-coherent Joint Transmission for Robust Sub-THz Access

Network as a Sensor

- Sub-THz Integrated Sensing and Communication
- Joint Communications and Sensing: 5G CSI-based Delay-Doppler Extraction
- Adaptive waveform transceiver: 5G NR Sidelink and MOXZ
- Sidelink-based Integrated Sensing and Communication
- Bi-static Integrated Sensing and Communication with 5G gNodeB

Intelligent Radio Environments

- Dynamic configuration of Intelligent Reflecting Surface (IRS) at 28 GHz
- IRS-Assisted Communication in Realistic Scenarios
- IRS Digital Twin



6G Conference 2025 — 6G-RIC Demos

6G Connectivity

Semantic-Aware Communications

Networked Collaborative Robotics

Neuromorphic Wireless Cognition

Autonomous Convergent

Photonic Neuromorphic Computing for Nonlinear Optical Signal Equalization

Networks

Towards Green6G: Cross-Layer Energy Monitoring

Signal Equalization using Micro-Ring Resonator based Photonic Reservoir Computing

Intent-Based Networking via ChatGPT and Knowledge Graphs

Autonomous Link-Capacity Adjustment in Optical Transport Networks

GPU-Accelerated Dynamic Resource Allocation in Open RAN

Open RAN E2 Mobility

400 G Real-Time SDM PON with 5G setup

Post Quantum Security

Secrecy Maps in Action

