

Total NTN/3D Communications Solution

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Total NTN/3D Communications Solution

- MAC, Baseband, RF, Antenna Design for NTN
- Hardware and Software Test Platforms
- Vendor and Operator Collaboration



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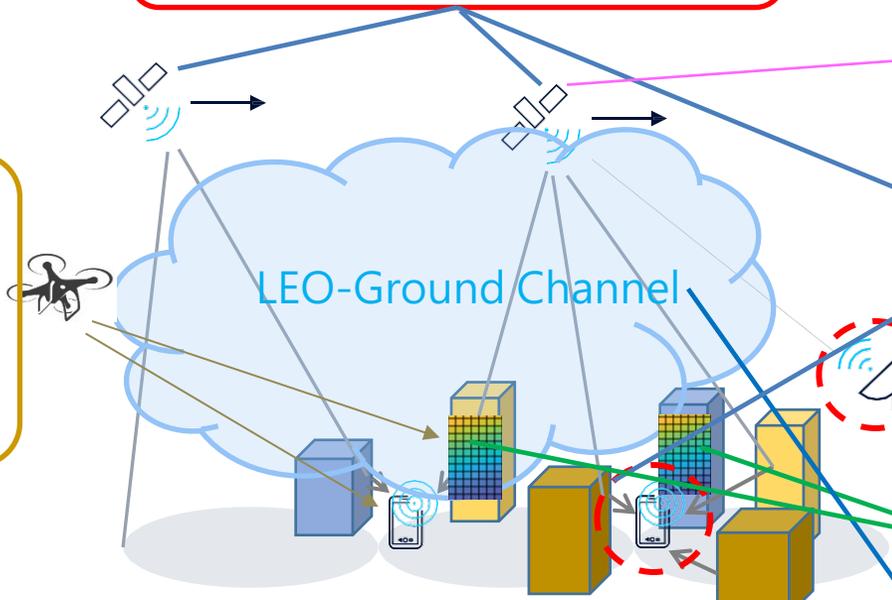
Competence

- Our team consists of 12 faculty members (5 IEEE Fellows) with expertise in communications, signal processing, networking, AI and data science, electromagnetics and antenna, IC design, optical communications.
- Large scale industry and international collaborations: including EU-TW (Clear5G), Chalmers, KTH (mmW, THz), Oulu (MAC, mMIMO), Qualcomm (mmW, RIS), Nokia Bell Labs (dMIMO), Intel (MTC, IoT), MediaTek (AI for Comm), Taiwan Space Agency (NTN), Aercomm (NTN), Chunghwa Telecomm (RIS), Taiwan Mobile (NTN, JCaS), Tron Future (NTN), Intelligent Maritime Research Center (NTN), etc.
- Committees, white papers: IEEE FDC, NGMN, Oulu 6G White Paper.
- Technical and organizing leadership in major events: IEEE Globecom 2020, 2025, APMC 2023.
- Spin-offs: Strong-Wave Radio Technology, Ohmplus Technology

NTN / 3D Communications and Platforms

LEO sats by TSA, Tron Future, and operators allied with Aerkomm

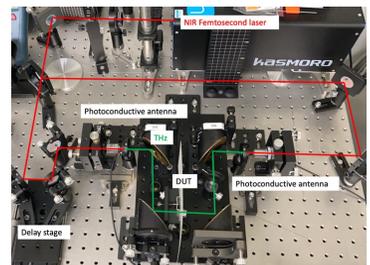
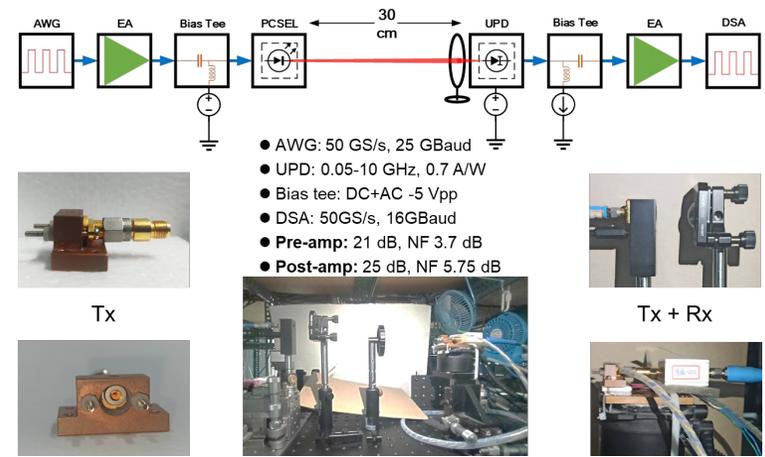
UAV platform for 3D comm and emulation of LEO



Sub THz for hotspot
300 GHz antenna array

- NTN PHY RF-SoC platforms for
- HBF for MU-MIMO
 - RF & antenna
 - New waveforms
 - AI-native PHY & MAC
 - Integrated RIS for better penetration
 - LEO-ground channel emulator

920/980-nm surface-emitting laser for inter-satellite comm



Interests of Collaborations

- NTN and 3D communications
 - Network layer and MAC
 - PHY design
 - Circuit, component, antenna
- Ground coverage extension
 - RIS (component and algorithm)
 - Sub THz hotspot
- Our collaborators on these topics already include vendors, operators, government agencies and academia. We look forward to broader collaboration to realize the next generation NTN and 3D communications.