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Title: *3D networks: towards integrated Land-Sky-Space Communications*

Abstract: The advancements in communication networks towards and those made within the aviation industry and the space communications are promising for researchers and industries to a federating 6G network in the form of 3D-integrated networks.

The integration of Terrestrial and Non-Terrestrial Networks (NTN) namely Mobile networks, Drones, High Altitude Platforms (HAPs), LEO and GEO satellites, is being investigated to provide connectivity to mission-critical and commercial users as well as for multiple usages in aero-connectivity.

The network and infrastructure coverage extension and reliability are major motivations for such a holistic multi-technology architecture. Therefore, both design and management schemes for 3-dimensional (3D) 6G networks should meet emerging requirements including Urban Air Mobility and be able to bridge gaps identified in today's communication networks.

In this direction, multiple research projects are working to provide intelligent and optimized solutions. The interoperability for such heterogeneous 6G networks is yet a cornerstone especially when it comes to security and trustworthiness.

This 6G Panel Session is an opportunity to hear from experts in industry and academia about the technical and standardisation challenges behind 3D Land-Sky-Space communication networks.

Moderator:



Amina Boubendir
(Airbus, France)

Bio: Dr. Amina Boubendir is Head of Research and Standardisation at Airbus Defence and Space. She promotes research and technology to overcome connectivity and secure communications challenges through development projects on 5G/6G networks and software-oriented design of end-to-end networks, including satellite communications, aerial platforms, and AI-based automated management. Sitting at engineering leadership boards, Amina leads the connectivity roadmap and Airbus contributions at major European and global SDOs like, 3GPP, TMForum, ETSI ISGs, and IEEE DIFI consortium. She represents Airbus at the European 6G Industry Association (6G-IA) and is a member of the Advisory Group of the European 6G Flagships Hexa-X and Hexa-X II. Amina led a number of projects within Orange Labs in collaboration with industry and academia. She was an expert member of the Orange experts' community on Networks of the Future. Amina has a PhD in networks and computer science from Télécom Paris and a publication record of 30+ publications.

Panelists:



Dinh-Thuy PHAN HUY

(Future Networks Orange Experts Community - Referent Senior Orange Expert (France))

Bio: Dr. Dinh-Thuy PHAN HUY is currently the Referent of the Community of Orange Experts on Future Networks, at Orange Innovation/Networks entity. She also is research project manager. She received the degree in engineering from Supelec, in 2001, and the Ph.D. degree in electronics and telecommunications from the National Institute of Applied Sciences of Rennes, France, in 2015. In 2001, she joined France Telecom R&D (now Orange Innovation), Châtillon, France. She has contributed to and led several collaborative research projects on 5G. She is co-inventor of more than 40 patents. She is the recipient of the “Prix Irène Joliot Curie 2018 – catégorie Femme-Recherche-Entreprise” from the French Ministry of Education and Research. She is a Senior Orange Expert and an IEEE senior member. Her research interests include wireless communications and 6G. She is currently involved in Hexa-x II EU project on 6G on Zero-Energy Devices, in RISE-6G EU project on reconfigurable intelligent surfaces (as workpackage leader on sustainability and security), in the IEEE Emerging Technology Initiative on RIS (as industry liaison officer), in 3GPP Ambient IoT and in the ETSI ISG RIS.



Marius Corici
(Fraunhofer FOKUS Institute, Germany)

Bio: Marius Corici (Dr. Eng.) is a senior researcher at the Fraunhofer FOKUS Institute. He has received his Diploma-Engineer degree at the — Politehnica University of Bucharest on Nomadic Satellite-Based VoIP Infrastructure. He has received his Doctoral Degree in 2013 on Self-Adaptable IP Control in Carrier Grade Mobile Operator Networks. Currently, he is the deputy head of the Software-based Networks division of Fraunhofer FOKUS, leading the research and development teams for the Open5GCore (www.open5gcore.org) and NEMI (www.nemi-project.org) toolkits and acting as a research pathfinder for the evolution towards vertical sectors and wide area networks as well as the design and specification of novel beyond-5G features and 6G architectures. Furthermore, he is acting as researcher at the Technische Universität Berlin, preparing the lectures on 5G of the department next generation networks (Architekturen der Vermittlungsknoten – AV) (www.av.tu-berlin.de).

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Dominic A. Schupke
(Airbus, Germany)

Bio: **Dr. Dominic A. Schupke** is a research leader in reliable communication networks, currently focusing on Wireless Communications at Airbus, in Munich, Germany. He is also a lecturer in Network Planning at Technical University of Munich (TUM). Prior to Airbus, he was with Nokia, Siemens, and TUM. He studied Electrical Engineering and Information Technology at RWTH Aachen, Imperial College London, and TUM, where he received a Dipl.-Ing. degree, an International Diploma, and a Dr.-Ing. degree (summa cum laude), respectively. Dominic authored or co-authored more than 150 journal and conference papers (Google Scholar h-index 32), as well as several patents. Three contributions received a best paper award. His research interests include network architectures and protocols, routing, recovery methods, availability analysis, critical infrastructures, security, virtualization, network optimization, and network planning. His current research focus is on aerospace networks. Since 2010, Dominic has been Editorial Board Member of the IEEE Communications Surveys and Tutorials (Impact Factor 33.84 in 2021). He was also Associate Editor of the IEEE/OSA Journal of Optical Communications and Networking from March 2009 to August 2013. He served as TPC chair and TPC member for numerous conferences as well as Advisory Board member of European research projects. Dominic is Senior Member of IEEE, and member of Comsoc, VDE/ITG, and VDI. He was appointed to an IEEE ComSoc Distinguished Lecturer for 2013 and 2014. Dominic received the Outstanding Service Award of IEEE Optical Networking Technical Committee (ONTC) for Key Efforts in Industry Outreach in 2017.