

~ Keynote Speaker ~

Professor Matti Latva-aho, Director for 6Genesis - Finnish Wireless Flagship, University of Oulu, Finland

Title: Radio Access Networking Challenges Towards 2030



Abstract:

Our future society is data-driven, enabled by near-instant, unlimited wireless connectivity. 6G will emerge around 2030 to satisfy the expectations not met with 5G, as well as, the new ones fusing AI inspired applications in every field of society with ubiquitous wireless connectivity. Ultra-reliable low-latency connectivity (URLLC) solutions must be developed beyond 5G New Radio; URLLC solutions must scale to large number of devices with varying requirements coming from different verticals. The societies will heavily depend on digital services with extremely high level of automation and a huge challenge remains to offer those services ubiquitously, i.e., also for remote areas with often limited backhauling. Capacity increase requirements are never ending, and thus, wireless connectivity solutions towards Terahertz bands must be carefully investigated as well as necessary RF and circuit technologies need to be developed. The applications of the future call for extreme intelligence from the wireless networks; centralized cloud based applications will not alone be able to provide those. Instead, decentralized AI and ML solutions for network edge as well as functioning in devices are required. Besides current MNO centric networks operation, local so-called micro-operators will appear as well in the near future to enable rapid deployment of various services needed in different verticals. Service offerings will become location dependent in addition to current mobile broadband services. However, this will call for renewal of legislation as well as changes in frequency regulation. Finland started a national 6G Flagship Programme studying the aforementioned challenges for the next generation networks in spring 2018. The programme

volume is USD 280M during the next eight years. This presentation will highlight our views on the requirements for networks beyond 2030 as well as potential technical directions to achieve the targets.

Biography:

Matti Latva-aho received the M.Sc., Lic.Tech. and Dr. Tech (Hons.) degrees in Electrical Engineering from the University of Oulu, Finland in 1992, 1996 and 1998, respectively. From 1992 to 1993, he was a Research Engineer at Nokia Mobile Phones, Oulu, Finland after which he joined Centre for Wireless Communications (CWC) at the University of Oulu. Prof. Latva-aho was Director of CWC during the years 1998-2006 and Head of Department for Communication Engineering until August 2014. Currently he serves as Academy of Finland Professor in 2017 – 2022 and is Director for 6Genesis - Finnish Wireless Flagship for 2018 - 2026. Prof. Latva-aho is the national co-ordinator for Wireless Innovation between Finland and the US (WiFiUS) – a joint research programme funded by National Science Foundation and Academy of Finland. His research interests are related to mobile broadband communication systems and currently his group focuses on 5G and beyond systems research. Prof. Latva-aho has published 350+ conference or journal papers in the field of wireless communications. He received Nokia Foundation Award in 2015 for his achievements in mobile communications research.