

## Press Release

Vienna, 24 February 2021

### AIT APPOINTS NEW PRINCIPAL SCIENTIST FOR 6G RESEARCH FOCUS

Thomas Zemen has been appointed Principal Scientist for 6G wireless communication systems at the AIT Austrian Institute of Technology

The mobile networking of people, but also of machines and physical objects (Internet of Things - IoT) is advancing inexorably, and 5G technology is in the process of a global rollout. In order to provide highly reliable communication for industrial control systems, robots, autonomous systems and much more during the digitalisation of our society, further technical developments are required.

High resilience, best functionality, security by design and high energy efficiency according to established standards are absolutely necessary to ensure further networking. For this purpose, a new 6G research focus was founded in the Center for Digital Safety & Security. This know-how is the key to a competitive Austrian business location and a contribution to the European strategy of digital autonomy.

With the appointment of **Thomas Zemen** as Principal Scientist at the Center for Digital Safety & Security, the AIT is entrusting an internationally recognised expert in the research field of future 5G- or 6G-based communication systems with the strengthened positioning of the AIT in this globally future-critical research field.

#### Reliable wireless communication

In his research, Thomas Zemen focuses, among other things, on the interaction of the physical radio channel with other parts of communication systems. He is the author and co-author of four book chapters, 37 journal articles, more than 113 conference papers and two patents in the field of wireless communications. Thomas Zemen teaches as an external lecturer at the Vienna University of Technology and was an Editor at IEEE Transactions on Wireless Communications from 2011 to 2017.

Since 2014, he has worked as a Senior Scientist at AIT, during this time he established the research group for reliable wireless communications. In 2017, he became the thematic coordinator for the research area "Physical Layer Security", which combines wireless communications, photonics, and quantum technologies.

Thomas Zemen studied electrical engineering/communications engineering at TU Wien and graduated with distinction in 1998. His doctorate followed in 2004 and his habilitation in 2013 - both also at TU Vienna. From 1998 to 2003, Thomas Zemen worked at Siemens Austria. From 2003 to 2014, he worked at the FTW Research Centre Telecommunications Vienna, where he headed the "Signal and Information Processing" department.

### **New applications through wireless 6G communication systems**

Modern 6G communication systems enable safer, cheaper, more reliable and environmentally friendly operation of many technical systems - for example in industry and transport, where future safety-critical applications require reliable wireless communication systems with short latency (maximum 100 microsecond delay) and high reliability (over 99.999%). 6G systems also reduce energy consumption and increase competitiveness, in line with the objectives of the European Green Deal goals, which aim at improving resource efficiency and lowering greenhouse gas emissions.

For example, in production processes of the future, it will be necessary to ensure rapid and reliable interaction between robots as well as between humans and robots. 6G communication systems will thus enable modern industrial companies to keep Austria on a competitive level when it comes to business locations and contribute to the digital autonomy of Austrian society.

Reliable real-time wireless communication links can also make decisive contributions to public transport systems which in turn contribute to CO2 reduction. Through them, it is possible, for example, to replace today's expensive wired security systems in rail transport with more cost-effective wireless communication links. The new 6G communication systems can also be decisive for the operation or revitalisation of previously unserviceable branch lines, since with their help the operation of trains can be realised autonomously and safely. This contributes to an increase in public mobility in rural areas and reduces individual traffic.

Further information about the centre: <https://www.ait.ac.at/dss>

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