

Tuesday, January 24th

RWW/ARFTG Joint Plenary Session

10:25 am

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11:05 am

RWW

Plenary Talk

Microwave Acoustic Filters for Wireless Communications: Recent Developments and Innovations

Amelie Hagelaue, Professor (Technical University Munich), Co-Director of the Fraunhofer Research Institution for Microsystems and Solid-State Technologies

For 30 years the success of microwave acoustics, mainly in mobile phones, has been unstoppable. A lot of effort has been spent to reduce the number of SAW/BAW devices, or ideally, completely remove them. However, no competitive technology providing the same performance at the same size and cost exists today. Thus, the trend is going in the opposite direction, driven by the demand for ever higher data rates and the desire to use the same phone in all parts of the world. The number of acoustic wave devices in a mobile phone is increasing with each new generation of communication standards. In this talk recent developments and innovations for microwave acoustic filters are presented. Those developments are novel architectures, new materials and advanced modeling techniques.



Prof. **Amelie Hagelaue** received the Dipl.-Ing. degree in mechatronics and the Dr.-Ing. degree in electrical engineering from Friedrich-Alexander-University Erlangen-Nuremberg, Erlangen, Germany, in 2007 and 2013, respectively. In November 2007, she joined the FAU Institute for Electronics Engineering, where she researched on BAW resonators and filters toward her Ph.D. degree. Since 2013, she has been focusing on SAW/BAW and RF MEMS components, as well as on microwave integrated circuits for frontends. From 2016 to 2019, she had been leading a Research Group on electronic circuits and from August 2019 to September 2021 she was Full Professor at the University of Bayreuth, Germany. In September 2021, she has joined the Technical University Munich as Full Professor and became the Co-Director of the Fraunhofer Research Institution for Microsystems and Solid State Technologies EMFT.

She has been engaged in research and development of microwave theory and technology, electronic circuits and systems, and communication and sensing systems. In these fields, she has authored or coauthored more than 140 peer-reviewed publications. She acted as a Guest Editor for a special issue of the IEEE Transactions on Microwave Theory and Techniques on the topic RF Frontends for Mobile Radio and is now an Associate Editor of the IEEE Transactions on Microwave Theory and Techniques.