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Automotive Radar: Trends, Innovations and Challenges

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Automotive radar is the most promising and the fastest growing civilian application of radar technology. Automotive radars provide the key enabling technology for autonomous driving revolution that is going to have a dramatic impact on everyone's day-by-day life. They play a significant role in the autonomous sensing suit, because of the considerable progress in the RFCMOS technology that enables the high-level of radar-on-chip integration and, thus, reduces the automotive radar cost to the level of consumer mass-production. However, this would not be sufficient without high angular resolution performance which can be obtained by multiple-input multiple-output (MIMO) and cognitive approaches at a lower cost. The super-resolution or so-called "imaging radar" is a key technological advance needed to enable highly autonomous driving. Therefore, a massive deployment of automotive radars in the near future is expected. This exponential growth in the number of radars on the public roads is expected to create a mutual interference challenge, that will need to be addressed shortly. Furthermore, automotive radars as key safety components require a very high reliability, therefore, novel methods for their calibration and testing are required. This Special Session expects to attract research publication in the area of array automotive radars and to share this state of the art knowledge between academia and industry.

Expected attendance.

The global automotive radar market size is expected to reach USD 12.16 billion by 2025. Further, automotive radars are the key enabling technology for autonomous driving revolution. Consequently, automotive radars are a thriving research topic and we expect very active participation from both industry and academia. There are also several regulatory aspects that are relevant to automotive radars (safety and spectrum sharing). Thus, we expect participation from academia, industry, and government/regulatory bodies.