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Title: **Dependable Vehicular Communications in Non-Stationary Propagation Conditions**

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Abstract: Services provide by intelligent transportation systems (ITS) require dependable wireless vehicleto-infrastructure and vehicle-to-vehicle communications. Vehicular communication channels are characterized by a non-stationary time- and frequency-selective fading process due to rapid changes in the environment. We introduce the local scattering function (LSF) as an efficient tool to obtain the time-frequency-varying root mean square (RMS) delay spread and the RMS Doppler spread.
Furthermore, we also analyze the time-variant Rician *K*-factor. We show that the distribution of these channel parameters follows a bi-modal Gaussian mixture distribution. With this fundamental channel characterization we can calibrate geometry based channel models for safety critical scenarios and obtain reliable link-level performance results of channel estimation algorithms and cooperative relaying transmission schemes.

Bio: Thomas Zemen received the Dipl.-Ing. degree (with distinction) in electrical engineering in 1998, the doctoral degree (with distinction) in 2004 and the Venia Docendi (Habilitation) for "Mobile Communications" in 2013, all from Vienna University of Technology.
From 1998 to 2003 he worked as Hardware Engineer and Project Manager for the Radio Communication Devices Department, Siemens Austria.
Since October 2003 Thomas Zemen has been with FTW Telecommunications Research Center Vienna, he leads the department "Signal and Information Processing" since 2008. He is the speaker of the national research network for "Signal and Information Processing in Science and Engineering" funded by the Austrian Science Fund (FWF). Thomas Zemen is the author or coauthor of four book chapters, 20 journal papers and more than 67 conference communications.
His research interests include vehicular channel measurements and modeling, time-variant channel estimation, iterative multiple-input multiple-output (MIMO) receiver structures, and interference management. Dr. Zemen is an External Lecturer with the Vienna University of Technology and serves as Editor for the IEEE Transactions on Wireless Communications.