TECHNISCHE FAKULTÄT

Department Elektrotechnik-Elektronik-Informationstechnik

EEI-KOLLOQUIUM

Power Line Communications: Beyond 50 Hz over power lines

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Diskussionsleitung: Prof. Dr.-Ing. J. Huber

Power line communications (PLC) collectively refers to technologies that use existing power lines for data communications at frequencies (far) beyond the 50 Hz (or 60 Hz) mains frequency, including so-called distribution line carrier (DLC) and broadband over power lines (BPL) communications. The single main advantage of PLC over other wired communications solutions is that the wire infrastructure is already in place. In fact, the electricity grid is the most ubiquitous infrastructure worldwide, and its extremely high penetration opens the door for a plethora of applications supported by PLC. On the negative side, power lines and power line distribution grids have not been designed for data communications, which gives rise to the notion of a "horrible channel".

In this seminar, we provide an introduction to and a partial overview of applications, standardization, and regulatory as well as communication theoretic aspects for PLC. This includes results on channel characterization and transmission technologies, and a discussion of recent developments in IEEE and ITU standardization.