

Einladung zu einem Promotionsvortrag

Vortragender:	Rajkumar Palaniappan, M.Sc.
Thema:	Coordinated voltage control in active distribution grids using distributed field measurements
Inhalt:	<p>The increase of distributed energy resources (DERs) is very good from an environmental perspective, although this new paradigm poses significant challenges to distribution grids. In order to determine the exact system state and control the flexibilities in real-time, field measurements are essential in the distribution grid. Considering these challenges, this thesis proposes control algorithms for real-time control of the various flexibilities using distributed measurements to prevent voltage and thermal violations, thereby driving towards distribution grid automation. The control algorithms are configured using IEC 61850 data models and applied to a selected research prototype. Such an implementation provides the advantage of modularity by separating the hardware and software, which essentially makes the software easily portable. Considering the increasing reliance on the data transmission between the various components, system and communication outages are inevitable in the future. This thesis also proposes individual countermeasures to mitigate such failures and make the algorithms more robust by implementing hierarchical control strategies and using data-based learning methods. The implemented algorithms are experimentally verified using a real-time simulator and an analogue grid model. To demonstrate the pertinence and versatility of the algorithms, they are applied on several benchmark and international grids. The results show that the implemented algorithms could support distribution grid operation by providing voltage control using real-time control of the flexibilities. The algorithms could be validated in reality when the local grid policies allow real-time control of the DERs.</p>
Termin:	26.01.2022 um 15:00
Ort:	https://tu-dortmund.zoom.us/j/97399419952?pwd=aEhaODZjbHJRoZVcjRUbTkodCgrdzog Meeting ID: 973 9941 9952 Passcode: 292282
Vortragsleitung:	Univ. -Prof. Dr. -Ing. habil. Christian Rehtanz

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Dekanat für Elektrotechnik und Informationstechnik
dekanat.etit@tu-dortmund.de