

Institut für  
Elektrische Antriebstechnik  
und Maschinen



Institutsleiterin:  
Univ.-Prof. Dr.-Ing. Annette Mütze  
Inffeldgasse 18/I  
8010 Graz

Tel. +43(0)316 873-7241  
Fax +43(0)316 873-107241

[muetze@tugraz.at](mailto:muetze@tugraz.at)  
<http://www.eam.tugraz.at/>

DVR: 008 1833

UID: ATU 574 77 929

## Gastvortrag

# Power-system stability improvements with wind-power generators

**Assoc. Prof. Boštjan POLAJZER (University of Maribor)**

**Mittwoch, 13. Juni 2018, 12:30 Uhr**

**Bibliothek des Institutes EAM, Inffeldgasse 18/1 (HS01020F)**

The forthcoming EU 2030 energy strategy will continue to increase the number and size of wind-energy conversion systems. However, due to the stochastic nature of wind and reduced inertia, the power-system stability might be adversely affected. Therefore, the grid codes for wind-power integration introduce new performance requirements on low- and high-voltage ride-through capability, reactive-power voltage support and the frequency inertial response. The research on wind-energy conversion systems is, therefore, not only about maximizing the generated active power; it is also related to control schemes for improving the overall power-system stability.

In MW-sized wind-energy conversion systems, synchronous generators (SGs) and doubly fed induction generators (DFIGs) are typically used. The power of the converters used in DFIG-based applications is usually 30% of the rated power of the wind turbine. The decoupling from the grid is only partial, while the DFIG stator modes are weakly damped with a natural frequency near the grid frequency. The SG-based applications, on the other hand, use full-size frequency converters that ensure complete decoupling from the grid.



**Assoc. Prof. Boštjan Polajžer** received the B.S. and Ph.D. degrees in electrical engineering from the Faculty of Electrical Engineering and Computer Science, University of Maribor, Maribor, Slovenia, in 1997 and 2002, respectively. In 2000, he was a Visiting Scholar at the Catholic University Leuven, Leuven, Belgium. Since 1998, he has been with the Faculty of Electrical Engineering and Computer Science, University of Maribor, where, since 2010, he has been an Associate Professor. His research interests include electrical machines and devices, power quality and power-system protection and control.