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## Gastvortrag

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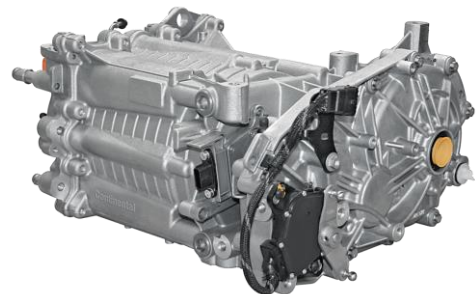
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# Externally Excited Synchronous Machines in Traction Applications: Special Requirements/Design/Measurements

Dr.-Ing. Wilhelm Hackmann (Fa. Continental AG, Berlin)

Freitag, 03.07.2015, 13:00 Uhr  
TU Graz, Hörsaal i1, Inffeldgasse 18/1

Electrical traction-drive systems for use as traction drives of automotive applications have to meet extremely rigorous requirements regarding performance and costs. To achieve the optimum cost-benefit ratio, drive systems must be designed to reach the level of performance required for vehicle operation. Over-engineering must be avoided while incorporating solution-oriented components which are compatible with automotive-series production. The series production must be scalable and also flexible so as to be usable with various applications.



The Continental axle drives (including externally-excited synchronous machines) fulfill these needs and have been operating successfully in numerous electrical vehicles since 2011. This lecture will present their drive concept, electrical design and performance capabilities in detail, but also compare them to other types of electrical machines. Furthermore, relevant measurement procedures, including advanced investigations with respect to noise and inverter-induced bearing currents, will be discussed, and an outlook on imaginable future work topics will be given.



**Dr. Wilhelm Hackmann** received his diploma in electrical engineering from TU Dortmund (D) in 1991. From 1992 to 2004, he worked as a development engineer in the railway traction drive development of AEG, Adtranz, Bombardier in Berlin and Wiener Neudorf. In 2003, he received the Dr.-Ing. degree from TU Darmstadt (D) for his work on wheel hub traction drives in street cars: induction, permanent magnet, and transverse flux machines. Since 2005, he has been head of the Motor Design and Simulation department of the e-traction drive development at the company Continental in Berlin.