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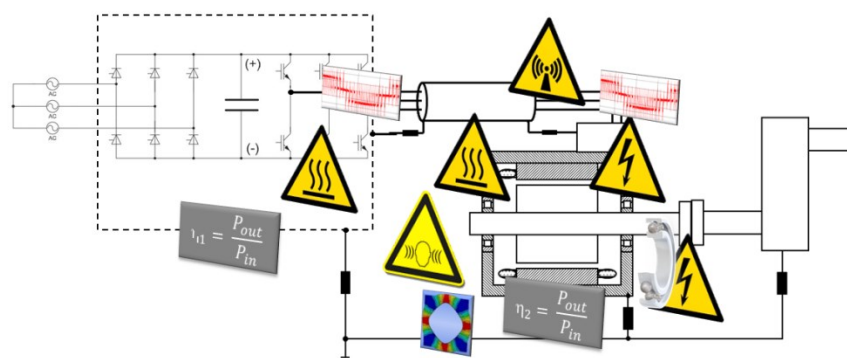
Special Session on

**SIDE EFFECTS OF MOTOR – CONVERTER INTERACTIONS
IN ELECTRIC DRIVE SYSTEMS**

organized and co-chaired by:
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Call for Papers

The modern electric drives consist of two major parts: the electric motor and the power electronic converter. Usually these two components are regarded separately; the converter manufacturers optimize the converter and the motor manufacturers optimize the motor. The most important part, the optimization of the complete Power Drive System (PDS) is often neglected. A drive system supplier has the task to design these two components in such a way, that their interaction does not cause undesirable side effects and the drive system operates without disturbances or outages. In order to do that, thorough knowledge of the characteristics of both components is necessary.



For example, in order to minimize the motor noise emissions in converter operation not only the motor mechanical design, but also the excitation source, i.e. the inverter, has to be taken into account; especially the inverter modulation technique, which influences significantly the frequency and the amplitude of the voltage and current harmonics, which in turn influence the vibrations of the laminations and of the housing and the emitted audible noise. Another example of side effects due to the motor-converter interaction is the motor bearing currents in converter operation. The latter depend not only on the motor characteristics (insulated bearings etc.) but also on the inverter-related common mode voltage and the motor-converter grounding characteristics.

Goal of the proposed special session is to raise awareness regarding the side effects that the motor-converter interaction can cause and the necessity for consideration and optimization of the PDS as a whole. More specifically, topics related to the motor-converter interaction that are welcome are listed next:

- Common mode voltage and bearing currents in converter operation.
- Motor noise and vibrations in converter operation.
- Torque harmonics and torsional oscillations in converter operation.
- Insulation stress in converter operation.
- Motor equivalent circuits for converter operation.
- Minimization the of the electric drive system losses related to converter operation.
- Modulation techniques focusing on the mitigation of the side effects of motor converter interactions.
- Consideration of side effects related to the complete "Integrated Drive System" (IDS).

Provisional full paper submission deadline:

30 January 2014

(The deadline is the same as for regular papers – check the website for changes)

All the instructions for paper submission are included in the conference website:

<http://www.icem2014.de>