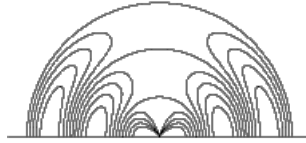


## SPECIAL SESSION



# **PIERS 2011**

**Progress In Electromagnetics Research Symposium**  
Marrakesh, Morocco  
20-23 March 2011

**Special Session: “ Fault Detection, Diagnosis and Tolerant Control“**

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Electricity is gaining more importance in critical applications such as transportation (More Electric Aircraft and Electric Vehicles) where reliability and safety are mandatory. Moreover the availability of energy has become indispensable not only for safety reasons but also for economic reasons to avoid any interruption in the process. Therefore continuity of operation is a key issue and requires the monitoring and the development of fault detection and diagnosis techniques.

Several failures afflict electromagnetic devices such as electrical machines, sensors and motor drives for example. Prior to any monitoring method are the modelling and analysis of the physical systems in faulty modes. Then comes the development of accurate and robust detection and diagnosis methods combined with redundant or conservative design. In the end, a fault tolerance approach is developed to give solutions that provide fault accommodation to the most frequent faults and thereby reduce the costs of handling the faults. The complex matter requires a multidisciplinary collaboration. Therefore this session is designed to be a meeting point between researchers from the different scientific communities that work on the Reliability, Availability and Safety of electromagnetic devices. The session addresses, but is not limited to, the following topics:

- Faults modelling of electrical machines, power converters, sensors, energy sources and storage devices, etc
- Faults detection methods based on identification (estimators, observers), signal processing methods,
- Fault tolerant control: passive and active structures, redundant design
- Lifetime evaluation, Prognosis,
- ...