Subsea permanent magnet motor with damper winding

Topic for specialization project (Autumn 2013)

Project background
Introduction of permanent magnet (PM) motor technology for subsea oil & gas application is the trend. Several companies work on novel solutions employing PM motors in pumping and compression subsea. Long step outs and varying load are the two main challenges for control of PM motors. Damper winding on the rotor is considered as one of possible solutions to the problem.

Work scope and expected results
Permanent magnet synchronous motor with damper winding should be designed. Specification will be provided. Literature review and patent search should be carried out prior to the design. Analysis of dynamic operation of motor with high load variation should be carried out. MATLAB with its toolboxes and FEM tools can be used. Several damper winding designs can be tried.

The work shall be done in cooperation with engineers at SmartMotor AS (www.smartmotor.no) – the company localized in Trondheim developing among other electric machines for renewable and marine systems. The project can be started as the specialization project (fall 2012) and continue as MSc project (spring 2013).

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