**Thyristor Controlled Reactor Modeling**

Thyristor Controlled Reactors (TCR) is a key component in the operation of Static Var Compensators (SVC). One main use of SVCs is to control the system voltage by changing the reactive power supplied by the SVC finely by the TCR or more coarsely by changing the energized capacitor banks.

Simulations are important for understanding the nature of how the TCRs can affect the power system due to the added harmonics. Several of the different components that are needed to be modeled in a TCR consist of the thyristors, reactor, and controls including a way to determine the phase of the system for the proper firing of the thyristors.

This seminar will provide information on a Matlab Simulink based TCR model with a Phase Lock Loop for determination of the desired firing angle. This presentation will also cover the basic 1st harmonic admittance calculations for the varying firing angles of the thyristor controlled reactors.

**About the presenter:**

Robert Van Singel is currently pursuing a M.S. in Electrical Engineering at Michigan Tech, and has also received his B.S. in Electrical Engineering at Michigan Tech in 2008. Work experience includes an engineering internship at L-3 Communications, Combat Propulsion Systems in Muskegon, Michigan and an internship as a field application engineer for Schweitzer Engineering Laboratories, Inc. Areas of interest include Power Electronics, and low level system design.