

*Holcombe Department of Electrical and Computer Engineering
Seminar Series*

Power System Control

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Abstract

Power system is probably the most complex system after our brain. There are different problems to be solved. In this presentation we will look into two different problems; one is related to wide area control of power system oscillations and another one is related to how to withstand over voltage in a multi module HVDC converter. First problem of inter area oscillation damping will be presented with two different techniques invented and published through two patents. The over voltage sustainability of Half Bridge MMC will be presented with another invention by injecting optimal amount of 2nd and 4th harmonic current in the arms of the MMC as circulating current.

First two inventions will show two different control method of inter-area oscillation damping in power system. The first method will illustrate an adaptive phasor power oscillation damper and the second method will illustrate on how to separate multiple inter-area modes and control them separately without affecting each other.

The presentation will be a summary of my three best inventions during my industrial career.

Biography of Speaker

Dr. Swakshar Ray obtained his B.E. in Electrical Engineering from Jadavpur University, India in 2000. He has done his M.S. in Electrical Engineering from Oklahoma State University in 2003 and his PhD in Electrical Engineering from University of Missouri Rolla in 2007. He has worked in ABB Corporate Research, Sweden as Associate Scientist for one year. Dr. Ray has worked in GE Global Research, USA as Lead Engineer for 3 years. He has also worked in Quanta Technology, USA and ABB Global Industries and Services Ltd, India, Larsen and Toubro Ltd, India. His total experience in industry is almost 11 years.

Dr. Ray has more than 35 international publications and 11 patent filings out of which 8 are granted.