

Spring 2016 Seminar Series

NOVEL HYBRID MAGNETIC/ELECTRONIC CONTROL DEVICES FOR POWER SYSTEMS

FRIDAY, MARCH 25, 2016

1:30 PM – HEC 356

The concept of magnetic amplifier – an electromagnetic device that used to be common in electronic applications – has seldom been used in power systems. Recently, an innovative low-cost magnetic amplifier-based power flow control device (MAPFC) has been proposed by Dr. Dimitrovski at the Oak Ridge National Laboratory. The uniqueness of MAPFC in comparison to the current state-of-the-art, flexible ac transmission system devices (FACTS), is in complete separation of control and controlled circuits. MAPFC uses the saturation property of the ferromagnetic core shared by ac and dc windings. The common magnetic field is used as the medium to control the ac winding reactance inserted in series with the controlled transmission line. Large power flows in the line can be regulated by small dc currents in the control winding. A multi-million-dollar project on MAPFC funded by the DOE's ARPA-e is currently being conducted in partnership with SPX/WES Inc. and the University of Tennessee. Some results from the project will be presented and plans for future developments will be discussed.

DR. ALEKSANDAR DIMITROVSKI
Oak Ridge National Laboratory



Dr. Aleksandar Dimitrovski is Chief Technical Scientist in power & energy systems at Oak Ridge National Laboratory and joint faculty at the University of Tennessee – Knoxville. In the past, he was with Schweitzer Engineering Laboratories and with Washington State University – Pullman, first as postdoctoral fellow and then as visiting professor. He received his B.Sc. and Ph.D. degrees in electrical engineering with emphasis in power and M.Sc. degree in applied computer sciences in Europe. Before coming to the US he was a tenured assistant professor (docent) at the University Ss. Cyril & Methodius in Macedonia. His area of interest is focused on uncertain power systems, their modeling, analysis, protection and control.

