**Abstract**

Renewable energies of different types of sources are gaining more and more attention due to the limited availability, the progressive dependency and constant increase of costs of fossil fuels and their negative impact on the environment. In addition, technological development, cost reduction and governmental incentives, have made renewable energy sources competitive in some markets and regions. Among these renewable energy sources, wind and solar photovoltaic energy are the fastest growing in the last decade with an increase of 200% and 500% respectively in just 5 years.

Power electronics is a key technology used in the wind and photovoltaic energy conversion systems, and can be considered an enabling technology in this field. Power converters are used to control and adapt the power flow from the source to the grid, and have a direct impact in the system efficiency and performance. This key role of power electronics, and the increased interest in renewable energy have triggered the development of power converter technology for renewable energy in the last years.

This seminar presents a brief overview on some renewable energy sources and the different power converter configurations used in their respective conversion systems. The aim is to show some of the latest developments of this exiting technology, which is one of the main research lines in the LEDAR lab of the ELCE department in Ryerson.

**Biography of Speaker**

Samir Kouro received the M.Sc. and Ph.D. degrees in electronics engineering from the Universidad Técnica Federico Santa María (UTFSM), Valparaiso, Chile, in 2004 and 2008, respectively. In 2004 he joined as Research Assistant the Electronics Engineering Department at UTFSM, and became Associated Researcher in 2008. Since 2009 he is a Post Doctoral Fellow at Ryerson University, Toronto, ON, Canada. His main research interests include power converters, variable-speed drives and renewable energy power conversion systems.

Dr. Kouro was distinguished by the President of the Republic as the youngest researcher of the Chilean National Fund of Scientific and Technological Development (FONDECYT) in 2004. He also received the “Ismael Valdes Award” from the Institute of Engineers of Chile, in recognition for the ability to organize and direct, moral conditions and technical preparation, in 2005. He is co-recipient of the IEEE Industrial Electronics Magazine Best Paper Award of 2008 from the IEEE Industrial Electronics Society.