

**Researcher from FESNS/FEAS awarded funding to investigate high current plasma simulation and experimentation and its applications toward clean fusion energy.**



Dr. Hossam A. Gabbar, Associate Professor in FESNS/FEAS was successful in obtaining research funding totalling \$356,000 in collaboration with HOPE Innovations as the industrial partner, and AECL and OCE.

The research team at UOIT includes postdoctoral fellow and graduate students (ECE-FEAS) to investigate modeling and simulation practices and codes for high current and high dense plasma beams, and experimentation toward clean fusion energy. The project includes fundamental research to study mathematical modeling and simulation of high current and high dense plasma beams with the collaboration with scientists from HOPE and AECL, as well as experimentation and engineering design to study stability and focus effect of intersecting high current plasma beams. This will open the door for wide range of potential applications of plasma in energy and other engineering disciplines. Dr. Gaber stated that one main merit of the project is to enable UOIT to build HQP of student team to study worldwide fusion experiments such as ITER, and to analyze current experiments with HOPE Innovations for better understanding of the behavior of intersecting plasma beams. Dr. Gaber is promoting this research through collaboration with advanced plasma physics lab in Nihon University, Japan, via MOU protocols between the two universities, and HOPE Innovations. Research team from UOIT is planned to visit Nihon University during May 2014. The research team is collaborating with scientists from AECL (Chalk River) to investigate simulation codes and suitable experimental design.