

## **Graduate Research in Using LEDs in Controlled Environment Plant Production**

**Location:** School of Environmental Sciences, University of Guelph, Ontario

Horticultural light-emitting diode (LED) lighting systems are beginning to replace conventional lighting technologies in controlled environment (e.g., greenhouse) plant (e.g., ornamental, vegetable and medicinal plants) production. This technology shift is largely due to the ability of LEDs to produce specific wavelengths of monochromatic light and function at greater energy efficiencies (i.e., converting electricity into photosynthetically active wavelengths of light) than conventional lighting. LEDs have the added advantages that they are dimmable and can be instantaneously cycled between off and full power. These characteristics give LED technology the potential to quickly modify both intensity and spectral output, in response to both changing sunlight conditions and specific crop requirements. We have funding to support a motivated domestic (i.e., **Canadian citizen or permanent resident**) M.Sc. or Ph.D. candidate to work on a collaborative, multi-disciplinary project. The project will integrate multi-waveband LED arrays and light sensors to develop a feedback-controlled light output management system. In addition, the successful candidate will be involved in developing protocols for deployment of this LED technology in various supplemental lighting scenarios including: meeting photosynthetically active radiation (PAR) requirements (ambient + supplemental), photoperiod control and modifying spectral output according to specific production requirements (e.g., modifying crop morphology). Implementation of protocols for real-time adjustments of LED intensity and light quality will save energy while improving greenhouse crop productivity and quality.

**Starting Date:** September 1, 2015 or as soon as a qualified candidate is found.

**Contact:** Please call or email for more information about this position. To apply, please provide a letter of interest (2 pages single-spaced), resume, unofficial university academic transcript and contact information for 3 references to:

Dr. Youbin Zheng

Associate Professor

School of Environmental Sciences, University of Guelph, Ontario

Tel: 519 824 4120X52741

Email: [yzheng@uoguelph.ca](mailto:yzheng@uoguelph.ca)