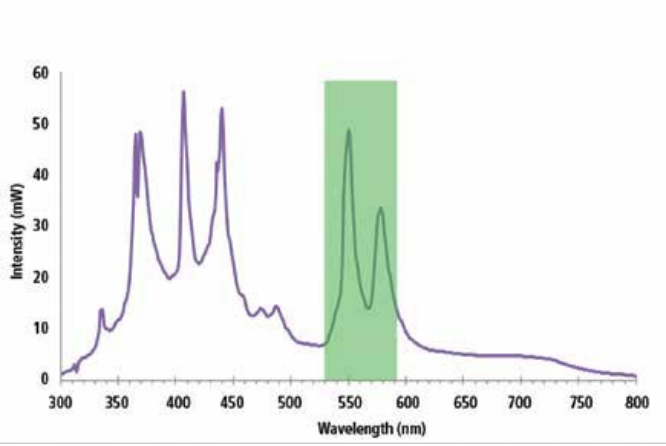
Abstract

Filling in the 'Green Gap' LED challenge for microscopy and medical illumination

Kavita Aswani, PhD. Senior Applications Scientist, Excelitas Technologies Inc.
Kavita.aswani@excelitas.com

Imaging in life sciences and microscopy applications have traditionally utilized Mercury, Metal Halide and Xenon arc lamps for illumination. With advancement in technology, LEDs are replacing arc lamps, bringing the benefits of long lifetime, increased stability and elimination of consumables for wide-field, confocal and multiphoton microscopy. LED technology is utilized not only in fluorescence microscopy systems to select the cells or tissues under investigation, but also in medical devices for diagnostic purposes. Many clinical applications requiring a high power light source to cover various wavelength ranges are also converting to LED systems that are now able to meet the requirements that once could only be addressed by traditional lamp technology, with the added benefits of LED.

While LED technology is acceptable for most wavelengths used in the majority of microscopy and medical applications, developing high power LEDs in the green excitation range has been challenging. This presentation aims to explain how LaserLED Hybrid Drive™ patented technology overcomes the challenges in the development of high power light sources required for medical and analytical devices. We also present the advantages of using LEDs over arc lamps for microscopy systems in life sciences.



Mercury lamp spectrum with the ‘Green Gap’ highlighted in green