Energetiq Technology Inc. produces a variety of light sources. This poster will review the physics of these products (and some proposed devices), with an emphasis on applications.

The technology to be described includes the basic EQ-10 at 13 nm wavelength, and related devices including higher power, high pulse rate, and proposed high brightness concepts, and the 2.88 nm source for water window microscopy derived from the EQ-10. In addition, we will present a summary of the physics and applications of the family of products based on Energetiq’s Laser Driven Light Source technology.

**Electrode-less Z-Pinch™**

- Inductively driven, electrode-less Z-pinch – integrated magnetic switch.
- 20 W of 13.5 nm ±1% Power in 2π ~8 W/mm² sr brightness >95% uptime; 24/7 operation

**Vis/UV Light Sources - LDLS™**

- Spectral brightness scales with laser power (unlike arc lamp, where plasma increases in size, limiting brightness).

**Applications**

- Analytical Spectroscopy
- HPLC, AA, UV-Vis
- Materials Characterization
- Environmental Analysis
- Hyperspectral Imaging
- Gas Phase Measurements
- Advanced Microscopes
- Endoscopes...

**Application – UV Microscopy**

- 250x improvement in exposure times compared to UV LED. Allows direct mapping of protein concentrations. [11]

**Advanced Concepts[8]**

- Modified Z-pinch
- Scale frequency, scale, power driven.

**References**

10. US Patent 7,435,982

**Applications and Installations ~ 25 worldwide**

- Mirror chamber (Illumination Options)
- EUV light source (DPP)
- CCD-camera
- Mask blank and imaging optics chamber

- Energetiq’s family of products based on advanced concepts, with an emphasis on applications.

- LED illumination, unfiltered, 3 s exposure
- LED illumination, 250 mm/10 mm filter; 5 s exposure
- EUV illumination, 280 mm/10 mm filter; 10 m exposure