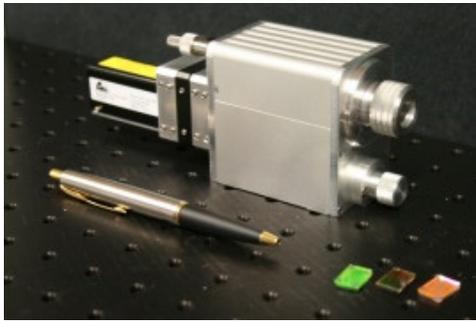




## Low cost selectable wavelength lasers



Liquid Crystal Laser demonstrator

Several designs of an optically-pumped, low-cost, liquid crystal-based laser technology have been developed. Selectable emission wavelengths from 450 – 850 nm have been demonstrated with a single pump source. These lasers offer a highly efficient, more compact, lower cost alternative to the use of multiple laser sources.

### Features

*Any colour, Anytime, Anywhere light field*

*Multiple designs / incarnations possible*

*Multiple emission wavelengths from a single pump source*

*Simple interchanging / replacing of the LC cells possible*

*Technology based on a combination of proven laser / optical technologies*

*Precise selection of emission wavelength demonstrated*

### Benefits

⇒ *Fully customisable across emission parameter space*

⇒ *Technology is customisable for a specific application (e.g. higher power vs. multiplexed simultaneous emission)*

⇒ *Cost and footprint saving, and lower running costs*

⇒ *Easy configuration of emission wavelengths, minimal impact on maintenance needs*

⇒ *Lower risk, known reliability and cost*

⇒ *Matching to desired excitation / illumination wavelength*

### IP Status

Prior Art + significant expertise in liquid crystal cell design and manufacture, and laser system design and engineering, means bespoke laser systems are attainable

### Development Status

Several demonstrator models exist

### Commercial Offering

Available for co-development

### Licensing Contact

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### The Challenge

Achieving multiple wavelength illumination / excitation in imaging, and metrology applications using lasers typically requires multiple laser sources, or use of expensive tuneable laser systems.

### Technology

Optically pumped, liquid crystal-based lasers, in conjunction with spatial light modulator control systems, offer a fully customisable excitation source. Researchers now at the University of Edinburgh have developed and demonstrated several prototype designs, including one currently in use by a local SME, that have the potential to replace the need for several laser sources in a variety of applications.

### Exemplification Data

Please see 'LC lasers spec sheet.pdf' for an overview of approximate specifications that can be achieved from existing demonstrators. Further developments are readily anticipated, and actual specifications will be determined by application target requirements.

### Applications

- Fluorescence / Confocal microscopy
- Flow Cytometry
- Microplate Readers