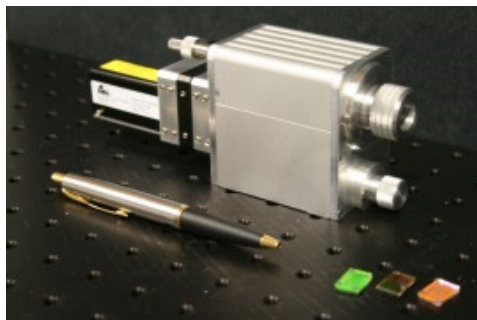




Low cost selectable wavelength lasers



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