

Sideways light delivery from optical fibre for surgical treatment

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Background

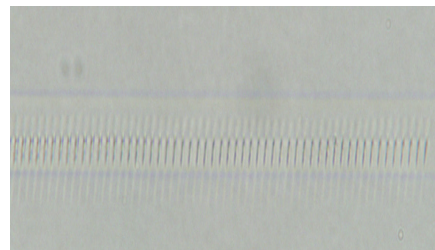
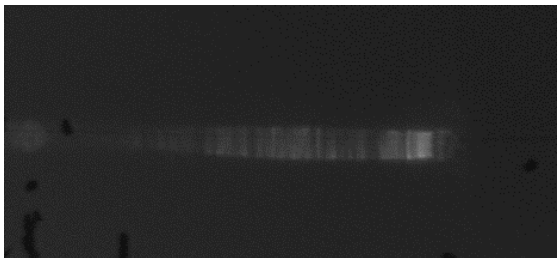
We are developing a device to deliver a beam of light sideways from optical fibre to allow keyhole surgery to be performed using lasers. Some tissues need laser treatment from within a tube (e.g. blood vessel or urinary tract), but this is awkward using the end of the optical fibre to deliver the light. Based on specialist fibre gratings, our device can be optimised for any wavelength delivered by optical fibre.

Outcomes

- Optical fibre delivery system for sideways light delivery in a single beam
- Any laser wavelength, handles significant laser power, temperature
- Laser treatment by inserting fibre in tissue and creating a line of laser-scarring or ablation
- Clinical trials of this system for treating various tissues

Progress to date

- Devices fabricated in single mode optical fibre
- Temperature scaling tested to 600 C, no problems shown
- Light emission observed, with modest power output, opportunities for scaling emitted power and tailoring spectral characteristics of emitted light



Camera image showing near IR light emitted sideways and optical micrograph of fibre core, showing structure of device for sideways light delivery.

Funding and collaboration are sought to

- Model, fabricate, optimise devices in multimode optical fibre for higher laser power delivery
- Demonstrate clinical applicability of the system

Contact

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