

Comparing ultrafast fibre and tuneable ultrafast lasers

Chromacity Ltd has published an **informative report** comparing the advantages of **ultrafast fibre lasers** with a **tuneable, ultrafast Ti Sapphire laser**.



Image caption: A: An ultrafast fibre laser (courtesy: Chromacity Ltd)

Fibre lasers

are a special type of solid-state laser, often having attractive features such as ultrashort pulse duration and high peak power in combination with high beam quality. Ultrafast fibre lasers have many advantages. Their optical efficiency is typically significantly better, enabling them to have a compact layout, making them easy to install, use and operate. Traditional ultrafast tuneable laser systems often require water cooling of the gain crystal, either with active chillers or closed loop systems where the gain crystal is pumped with a high-power source and so heats up significantly.

Unlike tuneable ultrafast lasers,

ultrafast fibre lasers are less sensitive to thermal effects and external disturbances making them more experimentally versatile. Furthermore, the flexibility of the optical fibres at the heart of fibre lasers enables customization of the optical path, permitting design optimization to suit different experiments.

A tuneable high-power laser

is a type of laser designed to emit coherent light over a large range of wavelengths. The ability of being able to tune performance into specific wavelengths makes these lasers particularly useful in applications requiring enhanced flexibility and performance optimization. If this flexibility is not necessary, fixed wavelength fibre lasers offer significant financial, technical and useability advantages.



To download a copy

of the report please visit https://chromacitylasers.com/wp-content/uploads/2024/10/Ti_Sapphire-vs-Fibre-Laser-Comparison.pdf or for further information about ultrafast fibre lasers please contact Chromacity Ltd. on +44-131-449-4308 / sales@chromacitylasers.com.



Image caption: B: Ultrafast laser technologies report

Chromacity Ltd.

is a world leader in the design, development, and manufacturing of advanced ultrafast pulsed fibre lasers. Based in Edinburgh, UK, the company specialises in fixed wavelength femtosecond and picosecond optical parametric oscillator (OPO) based tuneable laser systems. Based on a novel patented laser architecture that delivers ultra stable long-term performance, the fixed wavelength femtosecond fibre lasers work at 1040nm and 920nm, and the tuneable picosecond OPO lasers work across the near infra-red and mid infra-red wavelengths from 1.4um to 12um. Lasers from Chromacity Ltd. are simple to use, with no specialist support required to operate them – you turn them on, configure and use. These compact, air-cooled devices offer unrivalled long term pulse stability without the need for on-going maintenance.

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