

Eclipse(TM) - Revolutionary Femtosecond Laser Amplifier

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Spectra-Physics will unveil the revolutionary Eclipse(TM) high power femtosecond amplified laser at the 2004 Photonics West conference (San Jose, CA). This unique laser system is based on Ytterbium tungstate (Yb:KGW) and offers many critical advantages over ultrafast Titanium:sapphire lasers.

The Eclipse features the simplest and most rugged architecture and the lowest cost of ownership of any high power femtosecond amplifier system because Yb:KGW can be directly pumped by laser diodes,. In fact, the Eclipse demonstrates an unprecedented output power of up to 4 watts at 1048 nm. It operates at pulse repetition rates up to 7 kHz and generates pulse widths of less than 500 femtoseconds. Equipped with the optional frequency doubler module the Eclipse delivers an output power of up to 1.5 W at 524 nm.

"We believe this is the biggest breakthrough for our ultrafast customers since the advent of Titanium:sapphire first offered them a solid state alternative to dye-based systems," said Steve Sheng, President of Spectra-Physics Lasers. "There has never been a high power femtosecond amplifier as reliable and easy to use as the Eclipse. We expect this new family of products will play a major role in expanding the market for ultrafast, high-energy pulse products, in both the emerging field of femtosecond materials processing as well as in many areas of scientific research."

The compact Eclipse laser head utilizes a modular design in a single

compact housing, including two directly diode-pumped monolithic building blocks: a low power seed oscillator and a regenerative amplifier. To simplify the laser head architecture and enable easy maintenance, the four pump diodes are located in the rack-mounted system electronics and fiber coupled to the laser head. Using industry proven Saturable Bragg Reflector (SBR) technology for passively mode-locking the sealed oscillator further enhances reliability. In addition, the Eclipse requires no external cooling water.

A user-friendly graphical user interface (GUI) on a laptop computer provides straightforward user access to all important laser parameters, simplifying system integration into complex setups and making the system highly flexible, yet simple to operate.

Applications for the Eclipse encompass femtosecond precision materials processing as well as all aspects of ultrafast research, including pump-probe experiments and non-linear optics. The high-power beam of the Eclipse at 524 nm is ideal for pumping one or more optical parametric amplifiers (OPAs), enabling the wide tunability (10,000 nm) that is important for many scientific applications.

Find the original press release on www.spectra-physics.com/

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