

Press release

Powerful all-rounders: FBH's laser modules in matchbox size

At Laser World of Photonics, the Ferdinand-Braun-Institut highlights its miniaturized laser beam sources which are suitable for a variety of applications, from material processing to display technology.

Berlin, May 19, 2011

Compact laser modules from the Berlin-based Ferdinand-Braun-Institut (FBH) which are only the size of a matchbox open up various application areas. The flexible all-rounders can be optimized according to the specific demands made on lasers in material analytics, display technology as well as material processing.

The modules consist of several optoelectronic semiconductor chips (diode laser and amplifier) and adapted gallium nitride transistors. All chips have been developed at FBH and base on the institute's comprehensive know-how in semiconductor technology and chip development. Additionally, hybrid-integrated micro optics and non-linear crystals form the beam and transform the wavelength into the blue and green spectral region respectively. Within this spectral region, the modules now reach output powers exceeding 1.5 W with an excellent beam quality. Using a single-pass configuration enables simple frequency doubling and thus modules which can be realized specifically compact. They are particularly suitable for applications requiring low-noise performance, this means with as little undesired signals as possible, and fast modulation.

Efficient, pulsed laser beam sources offering high flexibility

The FBH additionally presents diode lasers which are, due to their flexibility, preferably used in laser systems for material processing. Mobile short-range LIDAR systems may also benefit from the efficient and compact diode lasers. One of such sources is a newly developed miniaturized pulsed laser module with 10 ps ... 100 ns pulse width and a defined repetition rate in the kHz and MHz range. FBH also introduces these lasers at the accompanying symposium. With hybrid-integrated amplifiers they reach peak powers up to several 10 W.

With its gain-switching 1064 nm DFB laser diodes assembled with integrated electronics in a butterfly housing, which FBH showcases at the fair for the first time, the institute introduces further flexible light sources for the 1-100 ns time-domain. Without amplifier, their pulse powers are at 1.5 W in the time range 1-10 ns.

Booth at "Laser World of Photonics"

The Ferdinand-Braun-Institut presents these and further developments at one of the leading branch events "Laser World of Photonics" in Munich (Germany) from May, 23 - 26, 2011 at booth 312 in hall C1 as well as at the affiliated symposium CLEO Europe.

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Backgroundinformation - the FBH

The Ferdinand-Braun-Institut, Leibniz-Institut fuer Hoechstfrequenztechnik (FBH) researches electronic and optical components, modules and systems based on compound semiconductors. These devices are key enablers, that address the needs of today's society in fields like communications, energy, health and mobility. Specifically, FBH develops light sources from the visible to the ultra-violet spectral range: high-power diode lasers with excellent beam quality, UV light sources and hybrid laser systems. Applications range from medical technology, high-precision metrology and sensors to optical communications in space. In the field of microwaves, FBH develops high-efficiency multi-functional power amplifiers and millimeter wave frontends targeting energy-efficient mobile communications as well as car safety systems. In addition, compact atmospheric microwave plasma sources that operate with economic low-voltage drivers are fabricated for use in a variety of applications, such as the treatment of skin diseases.

The FBH has a strong international reputation and ensures rapid transfer of technology by working closely with partners in industry and research. The institute has a staff of 230 employees and a budget of 20 million Euro. It is part of the Forschungsverbund Berlin e.V., a member of the Leibniz Association and plays an active role in various networks.

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