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## **ALPHA-RLH hosts scores of photonics innovations from eight cluster members at Laser Fair in Munich**

**Exhibitors offer advantages in bio-imaging, atom cooling, optical networking and micromachining as well as in metrological, aeronautical and space applications**

**Bordeaux, France, June 7, 2017** - ALPHA-RLH (Route des Lasers & des Hyperfréquences®), a technology cluster specializing in photonics, microwave and digital technologies, today announces that it is assembling top of the line high-powered lasers, ultra-precise optical instruments and 'plug and play' photonics systems from eight of its cluster members at Laser World of Photonics in Munich, June 26 – 29, booth #B3 336.

Laser World of Photonics is a world-leading trade fair for photonics components, systems and applications, where research and industry meet to discuss all the topics that pertain to photonics. Over 1,200 companies will exhibit at the event, which attracts visitors from 70 countries.

### **On display in Munich**

**Spark Lasers** will present one of its best selling ultra compact femtosecond lasers, Altair. The Altair laser is specially designed for biophotonics applications with a special focus on neuroscience, where 2-photon and multiphoton microscopy for the excitation and imaging of brain cells are needed. It offers high contrast thanks to high peak power and the possibility to precompensate dispersion induced by the complex optical systems. It achieves high penetration depth due to the 1µm-range emitting wavelengths.

This laser can provide ultrashort <180fs femtosecond pulses with an average power exceeding 20W anywhere between 1030nm and 1064nm and offers a unique combination of frequency synchronization and dispersion compensation. This makes it ideally suited for multiphoton microscopy. Its ultra-compact design (39 x 33 x 13 cm<sup>3</sup>) meets the scientific community's need to maximize bench applications with fast ROI and reduced dimensions.

**Azur Light Systems** (ALS), a leading developer of an innovative fiber laser technology at new wavelengths for scientific, industrial and bio-medical applications, will show a high-power infrared fiber laser and high-power visible cooler-less heads.

ALS' products offer a single frequency solution for high level quantum physics experiments, such as atom trapping or atom cooling, bringing advantages in ultra-low optical noise and high pointing stability up to 50W> output power. The specifications of its lasers also perfectly fit interferometric measurements such as laser Doppler velocimetry or high-precision holography. Its unique 976nm single frequency is an ideal solution for optical tweezers used to manipulate cells and individual molecules with laser light.

**Irisiome Solutions**, a developer of compact, turnkey and reliable solutions for a wide range of scientific applications, will exhibit a selection of the world's most versatile picosecond fiber lasers. These are designed with the only technology that gives users of industrial or scientific research lasers adjustable pulse duration, repetition rate and tunable wavelength within the same system. Irisiome's lasers are suitable for bio-

imaging applications, such as CARS, STED, multi-photon, quantum information, nonlinear optics and fundamental physics.

**Femto Easy**, a developer of robust and reliable measurement devices for temporal and spectral characterization of ultrafast lasers, will display its ultra compact Row Optical Correlator (ROC) autocorrelator and its Fast FROG. The ROC autocorrelator offers exceptional ease of use and accurate measurements. No calibration or tweaking is required. The devices are compact and transportable. Available in several wavelengths and pulse durations, other advantages include:

- Ultrashort pulses down to 5 femtoseconds
- Single shot measurements up to 200kHz
- Broad spectral range (450-2000nm for the broadband model)
- Suitable for any rep rate (from the Hz to the GHz)
- Large range of input energy (from 50pJ to 2mJ)

Users will find Fast FROG's key design features, notably a monolithic wavefront divider and a mini imaging spectrometer, make it very easy to use, while providing a high level of accuracy. Six models are available, covering a broad spectral range and a broad pulse duration range from sub-5fs pulse to 5ps.

**ALPHaNOV**, the optical and laser technology center of the ALPHA-RLH competitiveness cluster, will spotlight:

- PowerPAC custom-made high-power and high-precision connectors for plug-and-play operations, offering high repeatability and high reliability
- GoSpectro, an innovative device that turns any smartphone into a light spectrometer to authenticate gems, detect pollution, inspect food and for anti-counterfeiting
- The 'MultiBoard' solution, a set of electronic cards for controlling various fiber laser architectures, enabling them to reach a wide range of features
- PCF Amplifier, a turn-key 100-Watt class monolithic laser amplifier
- PCF Patch-cords, an end-treatment solution to photonics crystal fibers for splicing, cliving, end-capping or connectorization in bio-imaging, metrology, sensing and material processing applications
- PULS, an ultra-compact mod-lock oscillator, based on a picosecond passively mode-locked fiber laser technology. This laser oscillator offers a unique, monolithic solution for seeding optical amplifiers and has applications in multiphoton imaging, micromachining and biophotonics

**Eolite Systems** will display a unique 3-in-1 wavelength conversion module for picosecond/femtosecond lasers. Unrivalled in the versatility of its performance, this plug-and-play conversion module is able to access IR, Green or UV wavelengths using only a single IR laser source. Users save time and money as it eliminates the need to own three different laser sources. Ease of use is also improved; with no need to dismount laser sources and the control unit or change the communications protocol.

Designed for use in the lab or with industrial machinery, due to embedding all of the 'long life-time' features that make it highly robust, Eolite's compact conversion module is a powerful tool for finding the best process condition and wavelength window for each process and material.

**ISP System**, a maker of high-precision mechanic and mechatronic equipment for intense lasers and for application in aerospace, automotive, defense, medical and nuclear markets, among others, will exhibit:

- Electro-mechanical deformable mirrors offering excellent wavefront correction quality even for large beams. Advantages include suppressing the risk of hot spots

occurring due to electro-magnetic pulses and the possibility of easily exchanging the coated membrane

- Motorized Gimbal Tip-Tilt mounts for adjusting the position of the optics used for beam transport (laser alignment). As the mount stiffness is very high, it provides very good pointing stability to the laser. They are compatible with high vacuum
- Micro-positioning stages for adjusting the position of the optics inside industrial lasers. Their compactness enables easy integration in the laser, rendering them highly competitive as OEM parts

**Kylia** will show a selection of optical products based on its free-space optics assembly technology. These consist of ultra-precise 6-axis nano-positioning of micro optical elements (lenses, prisms, diffraction gratings etc.) and their bonding onto a reference surface. Products on display include an optical interferometer made for Airbus Defence and Space, designed for distance measurement between satellites, and a fiber coupled PPLN module, made for time and frequency metrology applications. Kylia will also exhibit its standard products: a coherent receiver, Delay Line Interferometer and Variable Optical Delay Line used in optical fiber telecommunications or scientific instruments.

### **About ALPHA-RLH**

ALPHA-RLH (Route des Lasers & des Hyperfréquences®) is a technology cluster specializing in photonics, lasers, microwave and digital technologies. It is the result of a merger between two French competitiveness clusters, Route des Lasers (Bordeaux) and Elopsys (Limoges), both located in the Nouvelle-Aquitaine region, a dynamic industrial area with one of Europe's highest concentrations of scientific expertise in photonics. As a priority, the cluster focuses on technologies and applications that are of strategic importance for national defense. These include the Laser Megajoule (LMJ), one of the two largest ever laser facilities in the world, and the Petawatt Aquitaine Laser (PETAL). It covers microwave communication, detection, navigation and localization, as well as other emerging technologies for digital healthcare, medical devices, renewable energy, smart buildings, embedded systems, aerospace, automotive clean tech and telecommunications etc. ALPHA-RLH currently has 250 members and has an operational budget of €2 million (\$2.1M).

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