News Release: TECS Award

Inaugural TECS funding awarded to Scientist for the development of the first commercial 3D Nano fabrication tool.

Singapore, Wednesday, 29 Oct 2008 – Helios Applied System is proud to announce that its proposal for the world's first HAS1000 commercial nano 2-photon lithography tool has been presented the inaugural Technology Enterprise Commercialisation Scheme (TECS) award by SPRING Singapore at the Matrix@Biopolis today.

Helios Applied System has beaten some other 200 firms to emerge as one of the 17 winners at the ceremony, whom together, garnered a total of $6 million worth of grant from the organizer.

"We feel very privileged and encouraged to be awarded the TECS," said Dr Kan Shyi Herng, the brain and pillar behind the winning proposal.

"Start-ups and SMEs often have very good ideas and R&D concepts but are limited by their resources. With this funding, we can then embark on our project to develop the first commercial HAS1000 system," he added.

The award aims to catalyse the formation of technology enterprises in Singapore and enable them to grow past their embryonic phase, secure third party funding and achieve growing revenues.

Being a competitive grant, the proposals are ranked based on the evaluation of a team of industry leaders like Agency for Science, Technology and Research (A*STAR), Infocomm Development Authority (IDA), National Research Foundation (NRF), entrepreneurs, venture capitalists and researchers. The proposals are assessed based on their technological and commercial merits and only the best proposals are funded.

Helios is currently housed under a local company, Zugo Photonics, whom it taps its technological expertise and support from. It also utilizes the lab facilities of its other partner, Ilios Systems for the development and building of its systems.

More on HAS1000™

The brain-child of Helios Applied Systems, HAS1000 system, uses Two-Photon Lithography technology to focus the laser beam onto a volume of bio-compatible MPP1000 photopolymer to initiate polymerization via two-photon absorption. After illumination, the arbitrary sub-micron 3D device will be washed to remove the non-illuminated region and the polymerized material remains.

The uniqueness of the devices fabricated by the HAS1000 system lies in its structure, size and process. Firstly, the system is able to fabricate three dimensional structures. Current technologies, other than in a lab-based condition, allow only the fabrication of two dimensional polymers. The advantage of being 3D is apparent in the tissue engineering industry. For years, biologists and bio-engineers have been trying to mimic natural environment to study and understand cell-cell interactions, but due to the lack of a suitable 3D platform, the cell properties may be misconstrued. Also, high resolution, something extremely difficult to achieve for a 3D structure in the Nano-scale, can also be achieved by two-photon lithography whose product resolution is much higher than any other known technology.

Secondly, the system is capable of fabricating devices in the Nano-level, with current devices ranging from 100nm to 300nm. This places the system in an advantageous position as researchers and industrialists are exploring exciting possibilities in the Nano-tech playing field and the tool has definitely helped opened up more opportunities in these areas. The HAS1000 supports stages of varying sizes to accommodate different substrates and modifications or special requirements may also be entertained by Helios depending on the applications.

Lastly, the key beauty of the system lies in its simplicity. Conventional MEMS and Silicon Micro fabrication technologies requires tedious processes involving the design of each and every layer of the device, fabricating masks for the layers and finally depositing or removing materials from each layer. These cumbersome processes have caused great inefficiencies and are very time-consuming. Through this single step tool, it is then possible to eliminate the thirty over steps required compared to the fabrication done in a Silicon Wafer Fabrication plant.

To illustrate how simple the tool process is – The user inputs the CAD drawing into the software and the computer does a stereo lithography scanning to determine parameters like Laser Intensity, Laser Power, Motion Control Interface and Array function Interface. Once done, the system will automatically illuminate the photo-sensitive polymer and produce arbitrary true 3D devices. Far exceeding industry's standards, the entire process takes less than a day from the input of the design to the actual delivery of the devices as compared to the average one to two weeks.

The system is also able to fabricate on a variety of substrate like GaN film on sapphire substrate, glass, silicon and MPP1000, a new biocompatible material certified within the FDA approved level of biocompatibility. On top of that, the system can also be applied to industries like Tissue Engineering, Photonics, MEMs/NEMS and Optical Component Device, with potential applications in Rapid Prototyping, Photo Lithography, Photomask and Photoresist.

About Zugo Photonics Pte Ltd

Established in 1994, Zugo Photonics is the premier regional distributor in Asia, specializing in photonics, industrial and scientific laser systems, and fiber optics components for telecommunications, optical networking solutions, infrared camera systems, and devices for semiconductor manufacturers. We distribute major brands that are reputable global market leaders in their respective fields. These names include Newport Corporation, Lambda Physik, Nutfield Technology, NT-MDT, Andor Technology, Vision Research, Capacitec and many more.

www.zugophotonics.com

About Ilios Systems Pte Ltd

Headquartered in Singapore, Ilios is an expert designer, developer and provider of laser systems and applications – purpose built to your organisation's unique requirements. Whether you're a system integrator incorporating laser engines into your machines; a handler manufacturer building on your laser applications; or a company looking to enhance your existing production processes with lasers, Ilios' proven capabilities and expertise will assist you to achieve your target results.

www.ilios-sys.com

About Helios Applied Systems

A startup company incorporated in 2008, Helios Applied Systems is the pioneer solutions provider for 3D nanofabrication. Our HAS1000™ is a single beam "scan and step" tool that is able to fabricate arbitrary 3D polymer structure that has sub-micron resolution. To complement the tool, Helios offers a biocompatible grade photopolymer MPP1000™. The company is headquartered in Singapore and is in partnership with Zugo Photonics and Ilios Systems.

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