



PRESS RELEASE

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Press Contact

Rob Dietrich, Senior PR Specialist
Halma Holdings Inc, +1 513 898-8007

Company Contact

Kyra Mazurek, Executive Marketing Assistant
Avo Photonics, +1 267 282-6589

Landauer and Avo Photonics Develop First Field-Use Automatic Neutron Dosimetry Reader

Horsham, Pennsylvania (June 17, 2013) – Avo Photonics has been chosen by Landauer Inc. to support the development and production of the first commercial automatic dosimetry badge reader, based in Landauer’s Fluorescent Nuclear Track Detector (FNTD) technology. The device allows personnel who work in close proximity to major sources of radiation to more closely monitor their individual exposure.

The reader can analyze up to 216 badges at a time on-site in the compact, table-top system for immediate readout of radiation exposure. Using confocal laser scanning fluorescence microscopy, the reader scans a 640nm-wavelength laser focused to a one micron spot size over the FNTDs, causing radiation tracks in the detectors to fluoresce in the IR (around 750nm). Using a secondary camera and automatic optical character recognition, the instrument reads the detectors’ engraved IDs to correlate the final analysis of each badge to its individual wearer. Through Avo’s fast data-processing electronics and the Landauer-developed fluorescent image analysis and interface software, the end-user receives an in-depth, configurable readout of the radiation doses received by each FNTD.

As a field-use instrument, the dosimetry reader required Avo’s expertise in rugged design and manufacturing to maintain the stability of the optical alignment to one micron. To achieve this, high precision optical components were laser welded into place, and the mechanical design incorporated as few moving parts as possible. The result is a compact, robust system with precision optical alignment and near-diffraction-limited resolution that remains stable through travel and long-term use.

“This project really highlights Avo’s ability to be extremely optically precise even in a highly complex system,” says Dr. Tom Haslett, Avo’s Chief Technology Officer. “We were excited to apply our knowledge and experience to Landauer’s cutting-edge technology.”

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Landauer's breakthrough FNTDs allow for rapid dose measurement rates and a high level of environmental stability. In comparison to standard plastic nuclear track detectors, they provide a wider range of measured doses, better spatial imaging resolution and measured track density, and a wider range of measured linear energy transfers. With the development of the commercial-use dosimetry readers, the FNTDs can be read in-field for the first time ever.

"Avo is known for their rugged, compact packaging, so we knew they would be a good fit for our FNTD reader," says Landauer Chief Scientist, Dr. Mark Akselrod. "They worked seamlessly with our team to design to our specs and move quickly into production."

Landauer is a leading global provider of technical and analytical services to determine occupational and environmental radiation exposure, the leading domestic provider of outsourced medical physics services, as well as a provider of high quality medical accessories used in radiology, radiation therapy, and image guided surgery procedures. For more than 50 years, the Company has provided complete radiation dosimetry services to hospitals, medical and dental offices, universities, national laboratories, nuclear facilities and other industries in which radiation poses a potential threat to employees. Landauer's services include the manufacture of various types of radiation detection monitors, the distribution and collection of the monitors to and from customers, and the analysis and reporting of exposure findings. The Company provides its dosimetry services to approximately 1.8 million individuals globally. In addition, through its Medical Physics segment, the Company provides therapeutic and imaging physics services to the medical physics community. Through its Medical Products segment, the Company provides medical consumable accessories used in radiology, radiation therapy, and image guided surgery procedures. To learn more about Landauer, visit <http://www.landauer.com>.

Avo Photonics provides exclusive, private label opto-electronic design, prototyping and production services for military, aerospace, medical, industrial and communications applications. Through its pure-service business model, Avo produces confidential, client-owned products and systems that launch its customers to the forefront of their markets. To find out more about Avo Photonics and its unique service process that enables it to work with companies at any stage of their idea lifecycle, visit <http://www.avophotonics.com>.

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Caption: Avo Photonics and Landauer Inc. have developed the first commercial automatic neutron dosimetry reader based in Landauer's FNTD technology.

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