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Arradiance Demonstrates First Plastic Microchannel Plate

Plastic Microchannel Plate Could Revolutionize Neutron Detection

SUDBURY, Mass.--(BUSINESS WIRE)--Arradiance, Inc. announced today the demonstration of the world's first microchannel plate fabricated on a plastic substrate. Microchannel plates are used in numerous imaging and detection applications where high spatial and temporal resolution coupled with high signal to noise ratio are important. Example applications include: space science, biotechnology, analytical instrumentation, homeland security and night vision.

"For decades, microchannel plate performance has improved only marginally due to a manufacturing process which is constrained by available materials and processes," explains Neal Sullivan, CTO of Arradiance. "The requisite lead-glass substrate material has limited the ability to optimize microchannel plate performance for applications where lifetime, gain and substrate size or compositions are important. Arradiance's proprietary thin film technology now makes it possible to fabricate microchannel plates from many materials including non-lead containing glasses, ceramics, silicon and even plastic, while allowing independent optimization of the functional films and the substrate"

"The day the first plastic MCP was born may become a part of technology history. [It] was never done before and it opens up many new applications and possibilities, which did not [previously] exist," said Dr. Anton Tremsin, of the SSL Experimental Astrophysics Group, U.C. Berkeley.

Arradiance will apply this technology to develop a practical, compact and efficient detector of the "fast" neutrons that result from the spontaneous fission of Special Nuclear Materials. Most neutron counting detectors require that these "fast" neutrons be "thermalized" or slowed through interaction with a moderator, such as plastic or water, in order to be detected. Moderation of the fast neutrons results in the loss of very important spatial and temporal information that could be used to locate the neutron source and significantly improve signal-to-noise.

This application is especially important for the country's burgeoning Port and Homeland Security needs. "Detection of fast, as opposed to thermal neutrons, can give the government a new tool with which to determine the location and type of nuclear threat at our borders," said Ken Stenton, CEO of Arradiance. "The speed, low noise and efficiency of microchannel structures coupled with the capability of plastic materials make this approach to a growing problem very desirable."

About Arradiance

Arradiance is enabling us to better perceive the hidden world all around us. Their functional film technologies greatly enhance the performance of imaging and detection systems, providing resolution, gain and lifetime improvements that were previously unattainable. Their enabling processes will open the door to a new world of flexible, robust, electro-optic systems that will change the way we see our world. Learn more at www.arradiance.com.

Contacts

Contact

Arradiance, Inc.
Mr. Ken Stenton, 800-659-2970
CEO
kstenton@arradiance.com

or

Media Contact

Technique Communications
Mr. John Morgan, 781-718-4530
jmorgan@techniquecommunications.com