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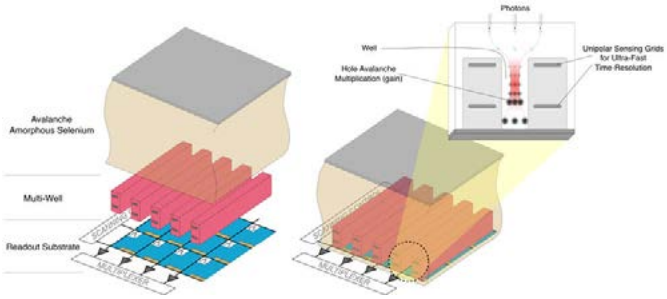
Multi-Well Avalance Selinum Detectors: Better Imaging for Early Cancer Detection

Early detection of cancer is paramount for determining effective treatments and increasing survival rate – and highly sensitive diagnostic tools are essential in the battle against cancer. Dr. Amirhossein Goldan, of Stony Brook University, has developed a technology that aims to increase sensitivity and time resolution using the patented "multi-well avalanche Selenium Detector" technologies.

Amirhossein Goldan, PhD

Currently, TOF-PET (Time of Flight Positron Emission Tomography) detectors use the difference in metabolic rate of cancerous tissue to help differentiate benign and malignant findings. Commercial detectors are mainly crystalline silicon-based which have limitations due to low efficiency, high cost, and small active area. These problems cause the PET imaging system to have suboptimal clinical effectiveness.



Dr. Goldan, has developed a next-generation class of detectors based on selenium, instead of silicon. These detectors are amorphous, and thus, offer large-area scalability and reduced cost compared to crystalline silicon. Support from the Long Island Bioscience Hub REACH initiative has aided the movement of this project from the laboratory to discussions of a strategic partnership with an international medical imaging company, Analogic Corporation.

Headquartered just north of Boston, Massachusetts, Analogic Corporation is a leading designer and manufacturer of healthcare and security technology. With operations world-wide, the company is known for their advanced imaging and real-time guidance technologies used for disease diagnosis and treatment as well as for automated threat detection. The company is in talks with Stony Brook's Office of Technology Licensing about an option for Dr. Goldan's technology.

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PET imaging isn't the only field where Dr. Goldan's new technology could be utilized. Due to the high sensitivity and large-area coverage the technology is capable of, Dr. Goldan foresees it being highly applicable for x-ray digital radiography such as 2D and 3D mammography.