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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health



National Institutes of Health Commercialization Assistance Program
(NIH-CAP)

Company Profile

Industry Sector: Medical Devices, Homeland Security

Company Overview: Triple Ring Technologies is a privately owned company servicing a unique niche in advanced development, bridging the gap between laboratory-based academic environments and large medical-device, security, and aerospace companies. Triple Ring's core expertise is in biomedical imaging, especially X-ray imaging, high-speed data acquisition and processing, modeling, and experimental work required for early-stage technology development. Triple Ring employs a staff of 100, including 21 Ph.D. scientists and engineers.

Target Market(s): Manufacturers of high tech equipment

Key Value Drivers

Technology: Triple Ring Technologies has developed a technology platform that uses a multi-focus, high power X-ray source in conjunction with high efficiency, photon-counting detectors. This technology platform is highly adaptable to meet specific demands in the areas of homeland security and medical imaging. Prototypes have been developed for baggage scanning, interventional cardiology, and interventional radiology.

Competitive Advantage: Our technology enables X-ray imaging capabilities beyond traditional 2D shadowgrams, and it allows depth resolution without resorting to computed tomography. As a result, absolute localization and real-time 3D tracking have been demonstrated. Advantages include better image quality due to scatter rejection, region-based exposure control, and significant reduction in radiation exposure.

Plan & Strategy: We plan to build a product line of imaging chains that utilize high power, multi-focus X-ray sources in conjunction with high speed photon counting detectors.

Management

Leadership:

Joseph Heanue, Ph.D., President and CEO

Brian Wilfley, Ph.D., Chief Scientist

Tobias Funk, Ph.D., Director of X-ray Systems

Barclay Dorman, VP of Business Development

Product Pipeline

Fast photon counting detectors: A second-generation production prototype CdTe detector with 0.33 mm pixel pitch and count rates greater than $10^8/\text{s}/\text{mm}^2$ has been developed.

Large area X-ray source: A second-generation production prototype of a large-area (500 cm^2) X-ray source with 25kW in continuous operation has been developed. More than 9000 focal spots can be individually addressed and focused using customizable collimators.

X-ray line source: A production prototype of a line source with 16 individual focal spots has been developed. Typical dwell times are 120 microseconds at up to 140kVp with a source power of 6kW in continuous operation.

Fast electronics: Prototypes of ATCA-compliant and PCIe compatible components provide a general-purpose data acquisition and analysis platform capable of TOPs/sec speeds.