

Advances in instrumentation for positron emission tomography

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As one of the major biomedical imaging modalities, positron emission tomography (PET) is widely used to diagnose and determine the stages of many types of cancer, neurological disorders, and cardiac related diseases. Early detection of various diseases using PET can lead patients to access therapies that are more effective during the initial stages of the disease. Current research in the field of PET instrumentation focuses on increasing the sensitivity of PET scanners with emerging detectors, extended axial field-of-view, and improved time-of-flight capability in order to improve image signal-to-noise ratio. These improvements will allow for early detection of small cancer lesions, stem cell studies, and dose reduction in patients. In this talk, the recent and emerging technological innovations that I believe will impact the PET field will be introduced.