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Data acquisition and radiation detection essentials for Positron Emission Tomography

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Positron emission tomography (PET) is a powerful medical imaging modality used in preclinical research and in clinical patient care. A small quantity of a short-lived radioactive isotope is attached to a chemical tracer molecule of interest and injected into a study subject or a patient. The PET scanner then measures the radioactive signal and recovers the distribution of the tracer molecule in the field of view. Modern research strives to improve image quality, continuously pushing the limits of physics and technology. This talk presents the fundamental concepts of PET imaging and establishes the relationship between image quality and past, present and future detector designs.

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