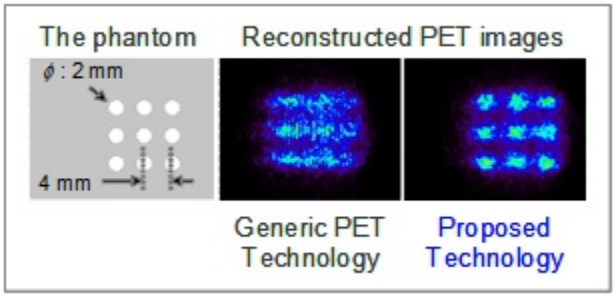
Docket #: S11-191

Methods of Extracting Photon Depth of Interaction for High Resolution Radiation Imaging Detectors and Systems

Stanford researchers have developed methods of extracting photon depth of interaction (DOI) information to develop less complex, cost effective DOI detector technologies for high resolution positron emission tomography (PET). This method is compatible with current non-DOI PET system detector designs used commercially which employ photodetectors on one end of the scintillation crystal array.

Photon DOI information is needed for high resolution PET applications, such as small animal PET imaging systems and organ-specific PET systems such as those used for breast, prostate or cardiac imaging. This invention enables high resolution PET with considerably less system complexity and lower cost compared to existing DOI-PET detector technologies, with comparable or better DOI performance.



Applications

- **High resolution PET imaging applications including:**
  - Small animal PET imaging systems

    - Organ-specific (a.k.a., dedicated) PET systems such as those used for breast, prostate or cardiac imaging applications
    - Applicable to dual or multi modality PET systems such as PET-CT and PET-MRI systems.

Advantages

- Less system complexity
- Cost effective
- Enhanced PET image quality and accuracy (see figure)
- Compatible with (only minor modifications to) existing detector technology used in most commercially available PET systems
- Compatible with dual or multi modality PET systems such as PET-CT and PET-MRI systems

Publications

- U.S. Patent Application, Serial No. 13/523,293

Patents

- Published Application: 20120318988
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