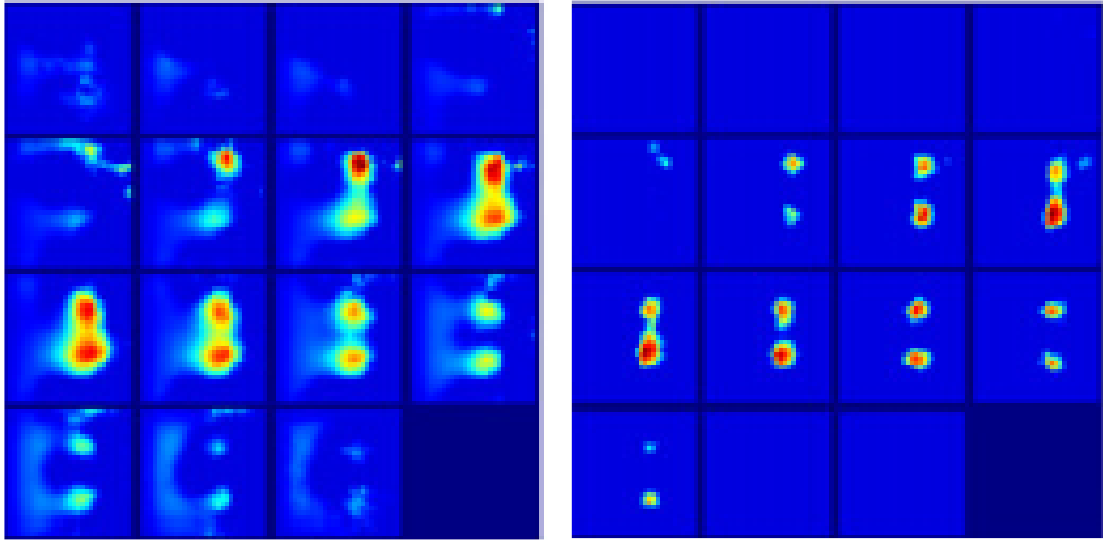




COLLOQUIUM



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X-ray luminescence computed tomography with a focused x-ray beam

Abstract

In order to overcome the optical scattering in optical imaging of deep tissues, x-ray luminescence computed tomography (XLCT) was emerged as a new hybrid imaging modality, in which the x-rays are used to excite phosphors emitting optical photons to be measured for imaging. The XLCT has potentials to have high spatial resolution of x-ray imaging and high sensitivity of optical imaging. To further improve the spatial resolution of XLCT, we have proposed an XLCT imaging system with a focused x-ray beam to scan deeply embedded phosphor targets. A polycapillary lens is used to focus the x-ray beam with a diameter of 100 micrometers at the focal spot. Highly sensitive photomultiplier tubes (PMT) with a cooling unit and pre-amplifier are used to measure the photons from the fiber bundles. We have validated the XLCT imaging system with both numerical simulations and phantom experiments.

3:00-4:30 p.m., Friday, March 24th
McLane 162
Refreshments served! All welcome,