

**First Mediterranean Thematic Workshop on Advanced Molecular Brain
Imaging with Compact High Performance MRI-Compatible PET and SPECT
Imagers –Potential for a Paradigm Shift**

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Dedicated innovative SPECT detectors for brain

Sunday 2 September 2012 09:35 (25 minutes)

Abstract. SPECT imaging of the brain has a long history of development. The goal of the development of brain SPECT imaging instrumentation and techniques is to provide the maximum detection efficiency or the lowest image noise level for increasingly improved spatial resolution. Most of the traditional brain SPECT systems utilize the scintillation detector technologies and improve the imaging performance through novel system configurations. Recently radiation detector technologies combined with special system geometries offer unique opportunities for new generations of brain SPECT system. In this presentation, we will provide a review of the development of brain SPECT systems, the radiation detectors they employed, and the special image reconstruction methods required. The progressive improvement of the quality of brain SPECT images will be demonstrated through examples from simulation, phantom and clinical studies. The recent advances in radiation detector technologies that provide great potential to make significant impact of the future of SPECT imaging of the brain will be discussed.

Presenter: Dr TSUI, B.

Session Classification: Advanced tools and techniques for brain imaging