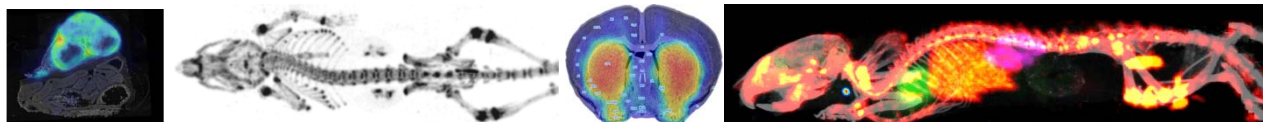


# 「Quarter-mm, Quarter-minute & Quarter MBq SPECT and Simultaneous Sub-mm PET-SPECT of molecules, particles and organs in action 」

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**Abstract.** Pivotal questions in pharmacology and biology concern how function of localized cells relates to disease. In experimental neuroscience we have dreamt about a magnifying glass that would allow us to see neurotransmitters in action, in cardiovascular research about a system that would provide us simultaneously with mechanical functions and various cell functions, and in cancer research for simultaneous detailed dynamic distributions of pharmaceuticals and indicators of tumor response. In recent years many groups have been involved in the development of pinhole imaging SPECT systems for imaging rodents. At the Delft University of Technology, an Ultra-high resolution Single Photon Emission Computed Tomography with integrated X-ray CT has been developed that can quantify tracer dynamics in  $\sim 1/4$  mm structures by applying novel focusing multi-pinhole geometries, acquisition and reconstruction methods. Recently, we developed a new way to perform SPECT imaging simultaneous with sub-mm Positron Emission Tomography (PET).



**Curriculum Vitae.** Prof. Frederik J. Beekman heads the section Radiation, Detection & Medical Imaging at TU Delft University. He co-authored 130 journal papers and is the inventor on 31 patents. Dr. Beekman was honored with several awards for his contributions to SPECT and PET technology and its application in biomedical research. His research interests include radiation technology applied to medicine and biomedical science and image reconstruction from projections. He is an associate editor of several journals and board member of Physics in Medicine & Biology. He is founder and part time officer of MILabs ([www.milabs.com](http://www.milabs.com)) that develops and markets high performance molecular imaging systems.



**Date: April 2, 2015 13:30 – 14:30**

**Place: Lab 1 C015 room**