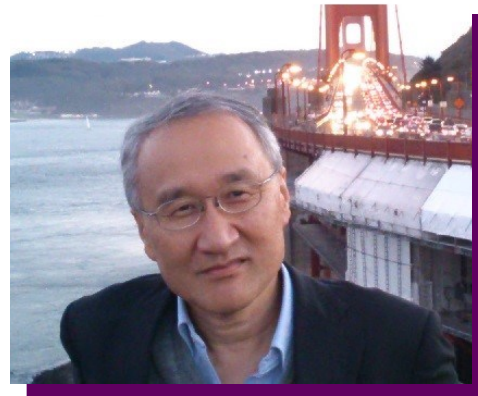


“Development of Ultrahigh Resolution Imaging Systems for Molecular Imaging Research”

Seiichi Yamamoto, Ph.D.

Professor, Radiology

Nagoya University Graduate School of Medicine



Professor Yamamoto graduated from Nagoya University, Nuclear Engineering in 1980. He worked for Shimadzu Corporation, Japan for 15 years, developing several commercial PET systems. He earned his Ph.D. from Nagoya University in 1993. Dr. Yamamoto moved to Kobe City College of Technology in 1996 and continued the development of molecular imaging systems. Dr. Yamamoto has been a Professor at Nagoya University, Graduate School of Medicine since 2012. His research interests are developing new imaging systems such as PET, SPECT, optical, and hybrid imaging systems. He developed the Si-PM based PET system in 2010 and now he is improving the spatial resolution of the PET systems. He has developed several PET/MRI systems and now he is developing new hybrid imaging systems. He is also trying to expand the research field to imaging on therapy. He is always thinking of creating new systems for imaging research.

ABSTRACT

In molecular imaging research, small animals such as mouse are often used for imaging. Because the size of mouse is small, high resolution imaging systems are required. Although position emission tomography system (PET) is a major modality in molecular imaging, the spatial resolution was limited to ~5mm for clinical systems. Much higher spatial resolution is required for small animal imaging. For this purpose, we are developing ultrahigh resolution positron imaging systems. A high resolution PET system requires small pixel size detectors. We have developed an ultrahigh resolution small animal PET system using less than 1mm size detectors and the spatial resolution of 0.7mm was achieved with the system. We also developed a positron imaging system by detecting the Cerenkov light emitted from positrons in the subjects. With this system, spatial resolution of 0.2mm was achieved. Hybrid molecular imaging systems made of PET and other imaging modalities will also be introduced.

Friday October 9th
Noon to 1PM



Presented From: Nagoya University, Japan
Videoconferenced to: 4142 Engineering Building III (NC State),
321 MacNider Hall (UNC), & East Carolina University (ECU)