

PET & MRI Fusion Imaging

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Abstract

Recent progress in Positron Emission Tomography (PET) and Magnetic Resonance Imaging (MRI) for molecular imaging and its applications to Brain Research and Medicine and Biology will be reviewed and discussed. Among the interesting topical areas, Positron Emission Tomography for molecular imaging and the ultra high field MRI dedicated for the brain imaging will be highlighted and its applications to the molecular imaging will be discussed especially in conjunction with the PET and MRI fusion approach.

In our approach to fusion PET-MRI was achieved by combination of two high end devices, namely super high resolution research PET HRRT (High Resolution Research Tomograph) and Ultra High Field MRI-7.0T. Together with these two devices and fusion hardware and software, it seems possible to obtain molecular specific images of high resolution fully compatible to fine structural definition of our human brain, thus lead to true in-vivo human molecular imaging of human brain hitherto unable to obtain with existing devices.

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