第84回　理学研究流動機構・基礎物理学専攻 共催　セミナー

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日 時：平成26年6月26日（木）16:45−17:45

場 所：本館3階45号室（理学系第2会議室）

“ New Magnetic Imaging Techniques: TRASE MRI and MPI “

Abstract

In this talk I will introduce and discuss two rather new, magnetic imaging techniques: (1) magnetic resonance imaging (MRI) using TRansmit Array Spatial Endcoing (TRASE), and (2) magnetic particle imaging (MPI). TRASE MRI utilizes radio-frequency (RF) phase-gradient fields, rather than standard B0 magnitude gradients, to manage spatial encoding. TRASE may be able to eliminate some of the disadvantages of conventional MRI – such as equipment expense, power consumption, mechanical vibration and acoustic noise – and its potential for cheaper and quieter MRI was recently highlighted in the science journal Nature. MPI, which was also first reported in Nature, is achieved by direct measurement of the spatial distribution of a magnetic tracer of superparamagnetic iron-oxide (SPIO) nanoparticles. MPI is safe, fast and offers excellent contrast. Its potential uses include cardiovascular and renal imaging, as well as cell labeling and tracking, and image-guided surgery. Both technologies are at an early stage in their development, and will likely benefit from further hardware innovation. Some ideas will be presented.

Host by Prof. Koichiro ASAHI(ext.2455)

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