Magnetic Particle Imaging Using Optically Pumped Magnetometers

We are looking for a highly motivated Ph.D. student to join our research group in developing an innovative imaging technique known as **Magnetic Particle Imaging (MPI)**. This project aims to establish next-generation diagnostic imaging using **Optically Pumped Magnetometers (OPMs)** and advanced image reconstruction methods.

Research Overview:

Magnetic Particle Imaging is a promising modality that enables high-sensitivity and highresolution visualization of magnetic nanoparticles injected into the body. These nanoparticles accumulate in specific regions such as tumors, and their magnetic signals can be detected externally. By capturing these signals with high precision, we can estimate the **location**, **size**, **and condition** of the particles.

Our research focuses on using **optically pumped magnetometers**, which have recently been introduced in biomagnetic measurements, to detect magnetic signals from nanoparticles with high sensitivity. To achieve high spatial resolution, we also employ advanced imaging techniques such as **single-pixel imaging** and other computational imaging methods.

Ideal Candidate:

- Strong interest in medical imaging, magnetometry, or applied physics.
- Background in physics, engineering, or related fields.
- Enthusiasm for experimental research and interdisciplinary collaboration.
- Programming skills or experience with signal processing is a plus.

Opportunities:

- Engage in cutting-edge imaging technology research.
- Work with an interdisciplinary team at the interface of physics, engineering, and medicine.

• Present research at international conferences and publish in high-impact journals. If you are interested in this exciting opportunity, please contact us with your CV, academic transcript, and a short statement of interest. We welcome both domestic and international students.