

STRONGLY INTERACTING MAGNETIC PARTICLE IMAGING

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PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,072,400	08/27/2024	2019-109
European Patent Office	Published Application	4003160	06/01/2022	2019-109

BRIEF DESCRIPTION

Nuclear medicine is a diagnostic imaging method that works very well, but it is both expensive and gives off excess radiation. X-rays also are used for diagnostic imaging but have poor contrast. Magnetic Particle Imaging (MPI) is a promising new tracer modality with zero attenuation in tissue, near-ideal contrast and sensitivity, and an excellent safety profile, however, the spatial resolution of MPI is currently the modality's only weak technical attribute.

UC Berkeley and UF researchers have developed a novel, compact, and intuitive MPI scanner that resolves this issue. The research demonstrated proof-of-concept studies for an MPI modality, referred to herein as strongly-interacting magnetic particle imaging (siMPI) that enables a super-resolution breakthrough. The siMPI provided more than a 6-fold improvement in every dimension of space spatial resolution and 37-fold increase in sensitivity. The MPI can be used for early-stage detection of cancer, gut bleeds, strokes, pulmonary embolism, and tracking immunotherapies and MPI can penetrate any tissue, including bone, lungs, and dense breast tissue.

SUGGESTED USES

- » early-stage detection of cancer, gut bleeds, strokes, pulmonary embolism, and tracking immunotherapies
- » inexpensive and noninvasive replacement for nuclear medicine applications

ADVANTAGES

- » zero radiation
- » near-ideal contrast, sensitivity, and depth penetration

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OTHER INFORMATION

KEYWORDS

MPI, imaging, diagnostic, scanner

CATEGORIZED AS

- » **Imaging**
- » Medical
- » **Medical**
- » Diagnostics
- » Imaging

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