

Magnetic particle imaging : an introduction to imaging principles and scanner instrumentation

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Abstrak

This volume provides a comprehensive overview of recent developments in magnetic particle imaging (MPI), a novel imaging modality. Using various static and oscillating magnetic fields, and tracer materials made from iron oxide nanoparticles, MPI can perform background-free measurements of the particles' local concentration. The method exploits the nonlinear remagnetization behavior of the particles and has the potential to surpass current methods for the detection of iron oxide in terms of sensitivity and spatiotemporal resolution. Starting from an introduction to the technology, the topics addressed include setting up an imaging device, assessment of image quality, development of new MPI tracer materials, and the first preclinical results.