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(54) **SYSTEM FOR RECONSTRUCTING MAGNETIC PARTICLE IMAGE BASED ON ADAPTIVE OPTIMIZATION OF REGULARIZATION TERMS**

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(58) **Field of Classification Search**
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See application file for complete search history.

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(57) **ABSTRACT**

A system for reconstructing a magnetic particle image based on adaptive optimization of regularization terms includes: a MPI device for scanning an imaging object to acquire a voltage response signal; a signal processor for constructing a system matrix; and a control processor for reconstructing the magnetic particle image based on an arbitrarily selected regularization term, inputting the reconstructed magnetic particle image to a regularization-term adaptive optimization neural network model for enhancement processing, taking the enhanced magnetic particle image as a first image, and calculating a loss value between the first image and an initial image to acquire a final reconstructed magnetic particle image. The system adopts a neural network model-based automatic learning approach, instead of the approach of manually selecting regularization terms and adjusting parameters, to improve the reconstruction efficiency and quality of the magnetic particle image.

7 Claims, 9 Drawing Sheets