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Integrating hysteresis models into the Radia software

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The Radia code is used widely to model magnets for various particle accelerator applications, especially for insertion devices at synchrotron radiation sources. Although Radia provides many useful capabilities, including generally nonlinear relationships between applied fields and material magnetization, it previously lacked a full description of the hysteresis dynamics present in ferromagnetic materials. We have developed extensions to theRadia Python interface which currently include two models, Jiles-Atherton and Preisach, that enable users to account for fully hysteretic dynamics in their magnet simulations. Our contributions feature efficient numerical implementations as well as useful loop-tracing and interpolation methods to allow users to accurately model developing dynamics during a simulation.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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