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## High-performance magnet simulation software

*Monday, 20 May 2024 16:00 (2 hours)*

We present a high-performance solver for the magnetostatic equations. The solver can simulate nonlinear and anisotropic magnetic materials on a highly variable grid, enabling efficient resolution of fine features even in very large systems. It is built on the Tpetra parallel sparse linear algebra package, allowing it to handle problems with billions of degrees of freedom and employ hardware acceleration with Nvidia graphics processing units. Integration into the VSim electromagnetics software allows users to design magnetic systems using existing graphical interface features. Example simulations of nonlinear magnets, with application to particle accelerator magnet design, will be shown.

### Footnotes

### Funding Agency

### Paper preparation format

Word

### Region represented

North America

**Primary author:** ZILBERTER, Ilya (Tech-X Corporation)

**Co-authors:** LEDDY, Jarrod (Tech-X Corporation); CARY, John (Colorado University at Boulder); VEITZER, Seth (Tech-X Corporation)

**Presenter:** ZILBERTER, Ilya (Tech-X Corporation)

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