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Simulation study of nanosecond pulse power based on gyromagnetic nonlinear transmission line

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On-axis injection mode is planned to use in the Southern Advanced Photon Source (SAPS), which requires high quality to injection pulsed power supply. Gyromagnetic nonlinear transmission line (GNLTL) is introduced as a pulse compressor to meet the needs for pulse width. In this paper, 3-D finite element model is established based on Landau-Lifshitz-Gilbert equation and Maxwell's equations. The influence of geometrical sizes and bias magnetic field to output pulse is analyzed for better design of NLTL. A prototype was built with nanosecond pulse width and sub-nanosecond rise time to verify the simulation.

Footnotes

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Asia

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