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# Study on the eddy current distribution in the coating layer on the ceramic chamber of a nonlinear kicker

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A 2D analytical expression for the eddy current in the Ti-coated layer of a nonlinear kicker is presented, along with a comparison to numerical simulations. The nonlinear kicker-based injection scheme has gained popularity in recent years and is now employed at several facilities. As a pulsed magnet, the vacuum chamber must be made of ceramic, with its inner surface coated with a conductive material. The eddy currents, which depend on both the applied magnetic field and the geometry of the chamber, can induce unwanted field components. This analytical formulation provides a quick and efficient way to estimate the effects of the eddy currents.

## Footnotes


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