APPROXIMATION OF EXACT MASSIVE SOLENOID PROFILE FOR GENERATING PULSED MAGNETIC FIELD

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Abstract

Approximation of exact massive single-turn solenoid profile for generating given magnetic field distribution on the surface of long coaxial conductive cylinder by polygon is proposed and validated. The accuracy of the method for determining the exact profile based on using the Green function is confirmed by solution of the integral equation for surface current density in

ideal surface effect approximation. Errors of the induction distribution due to using approximate profile solenoids and external inductance of solenoid-cylinder system are calculated. Influence on these values of number polygon sides on the profile main part and external surface solenoid radius is investigated. References 7, figures 4.

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