## عنوان مقاله:

Design and Simulation of a Slice-Rail with Multi Projectile and Coaxial Railguns using ۲D-FEM

## محل انتشار:

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## خلاصه مقاله:

Railguns has been researched considerably in recent years. Most of these researches is done to improve the main features of railgun, such as, increment of gradient of inductance L′, more uniform current density distributions, and launch synchronously multi projectiles per shot. In this paper, first the slice-rail railgun is presented and simulated by ANSYS software. Then, double and quad slice-rail with one axial is presented for multi-projectile shooting. Finally, the complete case of this slice-rail structure is studied as coaxial railgun. The geometry of slice-rail railgun has inner rail radii (Ri) and width (R۱), outer rail radii (Ro) and width (R۲) and the total angle of curved rails (θ). Current density distribution, Magnetic flux density and inductance gradient are computed for slice and coaxial railgun. Magnetic field at the outside of the muzzle for slice railgun with θ =۹۰˚ is computed and compared with rectangular railgun meanwhile L′ equals to ۰.۴۵ μH/m for both railguns.

## کلمات کلیدی:

Coaxial Railgun, current distribution, finite element method, inductance gradient, multi-projectile