

Seminar

Institute for Plasma Research

Title : Computer simulations for the design and optimization of the electromagnetic coilgun

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Date : 08th July 2019 (Monday)

Time : 03.00 PM

Venue : Seminar Hall, IPR

Abstract :

Electromagnetic (EM) coilguns due to their high efficiency, long barrel lifetime and high projectile velocity are of interest for high speed applications. Such systems also permit multistage acceleration. One of the potential applications of EM coilgun is in the long-range guns. They can also be considered as disruption mitigation systems for pellet injection in Tokamaks due to their potential to meet short time-scales required for disruption mitigation.

The EM coilgun involves a large number of design parameters (e.g. coil length, coil diameter, coil pitch, projectile start location etc.) which affects the final projectile velocity and hence the coilgun efficiency. One can obtain the optimum design parameters by performing a set of experiments but the experiments are time consuming and costly. Hence to cut down the time/cost of the experiments, computer modeling is required for the design and optimization of the experiments. In this talk, I will present the coil optimization studies for a given source and projectile parameters to achieve maximum projectile velocity.
