Contribution ID: **468** Type: **Poster**

The characteristics of the bus-bar of electromagnetic rail launcher

Wednesday, 21 June 2017 13:30 (1h 30m)

Electromagnetic rail launcher (EMRL) is one of the new propulsor based on impulse discharge with high current technique. In recent years, the research of EMRL has attracted the attention of domestic and foreign institutions, such as China, the United States Navy Laboratory, the French German Joint Laboratory, and has made great progress. In order to solve the fracture problem between bus-bar and rail connections caused by strong recoil in experiments, base on the study of mechanical properties this paper studied a bus-bar structure with high flow capacity, long life, and operational characteristics. The high current causes the bus-bar to be subjected to a strong recoil, in order to weaken the influence of the recoil, geometric design and simulation analysis are done according to the different angle between the bus-bar and the track. A high reliability, easy to operate bus-bar optimization structure is obtained through the force analysis and initial velocity calculation. This structure can be used in the laboratory.

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Session Classification: Poster session III - Pulsed Power Physics and Technology, Components and HV Insulation

Track Classification: Pulsed Power Physics and Technology, Components and HV Insulation