

# **Role of insulator sleeves in the electro-magnetic shock tube to produce well-defined dissociated-hydrogen targets for beam interaction experiment**

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Measurement of stopping power in matter is essential for heavy-ion-driven high-energy density physics [1]. The database of the stopping power for many elements under a normal temperature and pressure has been developed [2]. However, the stopping cross section can change due to a change of electronic state in the target such as ionization [3]. There have only been a few experimental results for the energy loss of charged particles in a dissociated target. Hydrogen is a suitable element to study the dissociation effect because it has only one valence electron.

An electro-magnetic shock tube [4] was chosen as a driver to generate a well-defined dissociated hydrogen target for the stopping power measurement. The previous experiments [5] showed that the discharge current sheet working as a pusher for the hydrogen gas in the shock tube had an inhomogeneous azimuthal component. In order to improve the homogeneity of the current sheet, we have developed insulator sleeves, which induce the breakdown and current sheath formation [6]. Further details on the experimental results will be presented.

## **References**

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