Abstract Submitted
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Investigation of moving structures inside a magnetized non-transferred arc plasma torch VIDHI GOYAL, GANESH RAVI, Institute for Plasma Research — In the present work, an indigenously made low power non-transferred arc plasma torch has been used to investigate the formation and dynamics of moving structures inside the arc channel in the presence of external axial magnetic field. Experiments have been carried out at atmospheric pressure with nitrogen as working gas for various currents, magnetic field values and gas flow rates. A high speed camera has been installed at the central end-on line direction from the nozzle exit (1.5 m away). Visual images have been sampled at the rate of 117000 fps to capture all known phenomena inside arc plume. Results show clear rotation of small hollow profiles inside arc column with changing shape size and rotation speed for different parameters. Changing intensity of different portion of arc column is clearly indicating change in current density and JB force. Detailed results will be discussed and presented.

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