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Research on Initial Plasma Development in the Laser Triggered Vacuum Switch[1] YUCHEN LIU, ZHENGHAO HE, Huazhong University of Science Technology — In this paper, a multi-electrode laser-triggered vacuum switch (LTVS) is developed to meet the requirements of the pulsed power technology. A pre-breakdown current trigger circuit has been built to investigate the initial process before the switch closes. Under the effects of the pulse laser, the target material generates initial plasma, then the plasma develops and increases because of the effects from electric field. It is found that the initial plasma current increases with the increase of the main gap voltage and the laser energy, and the initial charge amount generated by the laser trigger is approximately the same as the logarithm of the peak power of the laser.

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Yuchen Liu
Huazhong University of Science
Technology

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