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Plasma jets generated from conical-wire arrays driven by a 1-kJ pulsed-power system[1] PO-YU CHANG, Natl Cheng Kung Univ, MING-CHENG JHENG, National Synchrotron Radiation Research Center/Natl Cheng Kung Univ, CHIH-JUI HSIEH, MEI-FENG HUANG, Natl Cheng Kung Univ, PO-WEI LAI, Natl Tsing Hua Univ/Natl Cheng Kung Univ, YEN-CHENG LIN, JIA-KAI LIU, SHENG-HUA YANG, I-LIN YEH, Natl Cheng Kung Univ — Plasma jets were generated by using conical-wire arrays driven by a pulsed-power system. The pulsed-power system was built for studying space sciences, particularly in simulating solar winds. The pulsed-power system consisted of twenty 1-μF capacitors, two rail-gap switches, two parallel plate transmission lines, and a cylindrical vacuum chamber orientated vertically. Two capacitors were first connected in series forming a brick. Five bricks were connected in parallel forming a wing. Finally, two wings were connected in parallel forming the whole capacitor bank, i.e., 5 μF in total. The system was charged to 20 kV storing total energy of 1 kJ. When it was discharged, a peak current of 110 ± 20 kA with a rise time of 1.4 ± 0.2 μs, i.e., a peak power of $\sim$ 700 MW, was provided. The conical-wire array was formed by four tungsten wires with a diameter of 20 μm. The opening angle and the smaller radius of the conical-wire arrays were 30^{o} and 5 mm, respectively. Images of the implosions were taken by an x-ray pinhole camera with an exposure time of 1 μs, i.e., temporal-integrated images of the implosions. Images of the implosion will be shown.

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