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An university-scale pulsed-power system using a bipolar Marx generator PO-YU CHANG, SHENG-HUA YANG, MEI-FENG HUANG, ISAPS, Natl Cheng Kung Univ, ISAPS, NATL CHENG KUNG UNIV TEAM — A bipolar Marx generator is being built for x-ray sources or laboratory astrophysics and space research for university-scale laboratory. The system consists of ten stages. In each stage, two $1\ \mu\text{F}$ capacitors connected in series are charged to $\pm 30\ \text{kV}$ storing $9\ \text{kJ}$ of total energy. It delivers a current of $200\ \text{kA}$ to the load with a $200\ \text{ns}$ rise time during the discharge. It will be used for following three purposes: (1) gas-puff z pinches generating soft x-ray for bio-medical research in the future; (2) generating plasma jets to study interactions between plasma flows and unmagnetized/magnetized obstacles analogous to the interactions between solar winds and planetary magnetic fields or unmagnetized planets; and (3) studying the pinch in a dense plasma focus device. The results of current measurements and circuit characteristics are shown.

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