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The reseaches on compact repetitive pulsed power system based on Marx generator

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A compact repetitive pulsed power system based on Marx is developed. It consists of a high power repetitive power supply, a repetitive trigger and a Marx generator. By utilizing 10 inverter boost-doubling rectifier circuits to operate in parallel, we design and test a high power repetitive power supply which can transform 30V DC. to 100kV DC and charge a 0.3 μ F capacitor to 100kV in 150ms ; The repetitive trigger based on small-sized Marx can operat at repetitive rate of 5 Hz with output pulses of about 80kV with about 30ns rising time and 200ns duration time. The 8-stage compact Marx generator contailing 8 40nF capacitors can output a peak voltage of more than 400kV on a 15 Ω load when charged to 90kV. A compact repetitive pulsed power system is developed By system integration and sequential control. The pulsed power system can output single shot pulse or 5Hz repetitive pulses of more than 10GW on a 15 Ω load. This work will provide technology base for us to develop compact repetitive pulsed power system with higher output power.

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