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Application of Repetitive Pulse Power Supply in Rock Fracturing

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The rock fracturing technology can effectively enhance the permeability, the flow conductivity, and the production of oil and gas. Hence, in order to research the fracturing effect caused by the high voltage large current, a repetitive pulse power supply (RPPS) is developed. The RPPS is mainly composed of a repetitive charging power supply, energy storage capacitor, discharging switch and discharging electrode. The power of repetitive charging supply is 20 kW/20 kV. The maximum discharging energy of RPPS is 40 kJ. The experiment of rock fracture is completed with the RPPS and the size of cement rock is $\varnothing 200$ cm*60 cm. The fracture result shows that cracks are in a state of symmetry. With the increase of fracture frequency and fracture number, the width and length of the crack become larger.

Authors: FU, Rongyao (Institute of Electrical Engineering, CAS); Mrs GAO, Yinghui; LIU, Kun (Institute of Electrical Engineering, Chinese Academy of Science); Prof. SUN, Yaohong; Prof. YAN, Ping

Presenter: FU, Rongyao (Institute of Electrical Engineering, CAS)

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