

**HIGH SPEED VISUALIZATION OF THE EFFECTS  
OF OUTPUT PEAKING CAPACITOR ON  
UNDERWATER STREAMER PROPAGATION\***

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The paper describes the effects of an output peaking capacitor on the propagation of underwater streamer. A pulsed power modulator using a magnetic compression circuit was employed to generate 20 to 30 kV pulses with 2 microsecond pulse width. A point-to-plane electrode setup with 2 cm gap in tap water was used. A copper line with 0.4 mm tip diameter was used as the discharge electrode, and an aluminum plate was set in water and connected to ground. Underwater streamer propagation was visualized by an intensified charge-coupled display camera with a high-speed gate. An optional output peaking capacitor was connected in parallel to the electrodes to get pulses with different rise-time. Thin and well-distributed channels were observed when the peaking capacitor was used. In contrast, the number of streamer channels was small and each of them was thick and bright when the peaking capacitor was removed from the circuit. It is concluded that the peaking capacitor has a favorable effect on the generation and propagation of the underwater streamer-like discharges.

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