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Influence of ultrasound on the development of a pulsed electric discharge in conducting water

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The development of an electrical breakdown in water with a conductivity of 255 microns/cm under the influence of ultrasonic waves for the geometry of "tip–pin" electrodes with an inter-electrode gap of 8 mm has been experimentally investigated. It was found that at the same voltage, close to the minimum breakdown voltage, the probability of breakdown initiation and discharge closure of the gap increases by two times when exposed to ultrasound without cavitation, and the time of the pre-breakdown stage is reduced compared to the breakdown without ultrasound.

Keywords: electrical breakdown, water, ultrasound, thermal breakdown.

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