

**ELECTRODES POLARITY EFFECT ON THE
DEVELOPMENT OF BREAKDOWN IN CONDUCTIVE
WATER WITH AIR MICROBUBBLES**

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The influence of the polarity of electrodes with pin-to-rod geometry on the development of a pulsed electric discharge in water with electrical conductivity of $90 \mu\text{S}/\text{cm}$ with and without air microbubbles is experimentally investigated. It was found that the initiation of the plasma channel at the anode in water occurs near the metal-liquid-insulation contact for both investigated anode geometries. In the presence of bubbles at an increased voltage, the development of plasma channels after initiation occurs in the direction opposite to the discharge gap along the insulated surface of the electrodes. In the presence of bubbles, the amplitude of the breakdown voltage decreases, the initiation delay time and the total time of the breakdown development by the channel developing from the pointed anode decrease. Increase of voltage amplitude leads to the development of the channel from the cathode, regardless of its geometry.

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