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MAIN MODES OF CORONA DISCHARGE WITH CHANGING IN VOLTAGE POLARITY*

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Corona discharge is one of the most common self-discharge modes and is widely used in various fields. His research was carried out in many works and continues now [1-5]. This is due, in particular, to the presence of non-stationary regimes during the initiation of a corona discharge with both positive and negative polarity of the voltage on the electrode with a small radius of curvature [4].

This paper presents the results of studies of a corona discharge with a cathode or anode with a radius of curvature of ≈20 μm. The conditions for the initiation of the discharge and the transition from stationary to pulsed regimes are shown. On figure 1 shows photographs of a corona discharge in atmospheric air that illustrate different modes with negative and positive polarity of the needle.

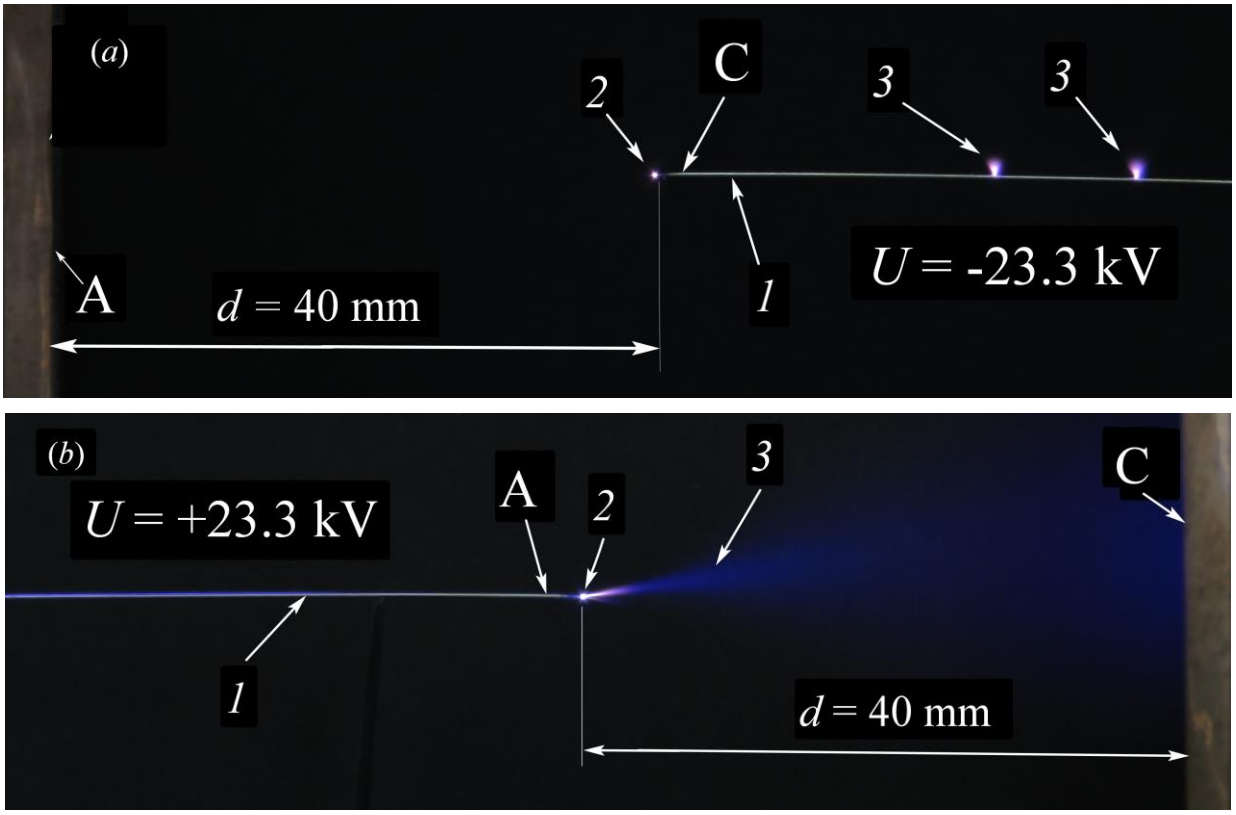

Fig.1. Photographs of the glow of a corona discharge, demonstrating different modes in a gap 40 mm long with negative (*a*) and positive polarity of the tip (*b*). *1* - needle, *2* - area of bright glow at the tip of the needle, *3* - plasma jets.

The minimum size of the luminous region near the tip, which had a spherical shape, in these conditions was ≈0.08 mm, and the length of the cylindrical jet from the positive tip with increasing voltage reached a flat electrode (d = 40 mm).

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