

Abstract Submitted
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Development of a Nitrogen DBD-Plasmajet based on Capillary Discharge Design BERNHARD BOHLENDER, MARCUS IBERLER, JOACHIM JACOBY, Goethe Universität Frankfurt, IAP — This contribution is about a Nitrogen DBD-Plasmajet at atmospheric pressure. APGD (Atmospheric Pressure Gas Discharges) are used, e.g. for the treatment of surfaces. The experiment presented is such an APGD being developed for medical applications like the sterilization of instruments. The setup is an APGD based Plasmajet constructed as a capillary discharge. The capillary is made of Al₂O₃ with a thickness of 1.05mm. Within the capillary is the inner electrode with a borehole of 1.8mm. The outer diameter of the used capillary is 2.8mm. The outer electrode is attached on top of the capillary with a variable distance to the inner electrode's ending. The inner electrode is connected to a sinusoidal voltage of up to 10kV peak-to-peak amplitude at a frequency of 15kHz. The outer electrode is attached to ground potential. Nitrogen flows through the setup with atmospheric pressure, thus the plasma generated is being pressed out. The next step of the work is to find the resonance frequency of the set up. Simulations of the electrical circuit are performed. In Addition, optical and electrical measurements are planned in order to characterize the plasma parameters. The further development in the future includes a decrease of the size and a panel constructed of 3 to 4 identical capillary discharges to increase the area of the outgoing plasma. Founded by BMBF, Willkomm Stiftung, HIC for FAIR

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