

VACUUM ULTRAVIOLET (VUV) EMISSION FROM A FAST-PULSED DIELECTRIC BARRIER DISCHARGE IN ARGON

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The vacuum ultraviolet (VUV) emissions from a planar, fast-pulsed dielectric barrier discharge (DBD) in Ar were measured. The DBD reactor is a rectangular quartz tube with a discharge gap of approximately 0.7 cm. A fast, high-voltage switch supplies a shorting pulse with a fall time of approximately 20 ns, resulting in a diffuse, uniform discharge. The relative emission intensity of the Ar₂* excimer around 126 nm, as well as NI, OI, and N₂ emissions due to impurities from air, as a function of pressure (50 – 350 Torr), applied voltage (3 – 6 kV), and frequency (10 – 30 kHz) is reported. These results are compared to the VUV emissions from the same reactor using an AC high voltage source.

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