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EFFECTS OF DIELECTRIC SURFACE MORPHOLOGY AND ROUGHNESS ON ATMOSPHERIC DIELECTRIC BARRIER DISCHARGE

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Abstracts

The research of dielectric surface charge accumulation and dissipation is of great significance to reveal the formation mechanism of uniform distribution of atmospheric dielectric barrier discharge. In this paper, Six quartz glasses through mechanical polishing processing of different roughness were prepared as a dielectric, the dielectric barrier discharge under the same experimental conditions. The voltage and current and the emission spectrum of dielectric barrier discharge were recorded and then the power and the spectral lines were calculated and analyzed respectively. The relationship between dielectric surface resistance, roughness and charge accumulation and dissipation was discussed at the last. The results show that the different roughness of dielectric have different discharge power and spectral line intensity which due to the influence of dielectric surface morphology to charge accumulation and dissipation.