

Poster paper

**GAS TEMPERATURE MEASUREMENT IN OXYGEN-NITROGEN
PLASMAS DILUTED BY HYDROGEN**

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The gas temperature is measured in a DC discharge by analyzing the optical emission spectrum of the second-positive band of a nitrogen molecule. Rotational temperature has been used widely as neutral gas temperature measurement in different types of plasmas. The neutral gas rotational temperature have been measured for various ratios of O₂ and N₂ in O₂ - N₂ plasmas, as well as under dilution by Hydrogen (up to 5% in the total pressure). The gas temperatures were determined by recording N₂ (C³π_u → B³π_g) emission in the ultraviolet (337.13 nm). The working pressure was from 50 to 2000 mTorr and the DC voltage was changed from 0.8 to 2.2 kV. The technique described in this article enables the measurement of the neutral gas temperature in the discharge that is not accessible via conventional methodology using thermocouples. The results show that for some specific ratios of O₂, N₂ and H₂ the neutral gas temperature via N₂ emission is difficult to determine.

Poster paper

**ELECTRIC FIELD MEASUREMENTS IN DIELECTRIC
BARRIER DISCHARGE OPERATED IN NITROGEN**

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Temporary resolved spectral band intensity distributions were measured in dielectric barrier discharge operated in nitrogen. Reduced electric field strength (E/N) were estimated from the bands intensity ratio of the first negative (λ = 391.4 nm) and the second positive system (λ = 394.3 nm) of molecular nitrogen for 200 mbar and 800mbar pressure. From electrical measurements using Lissajoues figures at various pressures values of electrical power deposited in the discharge were calculated.