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Characterization of a low pressure capacitively coupled RF discharge in N2-H2[1] G. WATTIEAUX, J. BERNDT, E. KOVACEVIC, M. MIKIKIAN, L. BOUFENDI, GREMI, Universite d Orleans, France, N. CARRASCO, G. CERNOGORA, LATMOS, UVSQ, France, A. GOUVEIA, C.D. PINTASSILGO, L. MARQUES, L.L. ALVES, IPFN-LA/IST Lisboa, Portugal — Discharges operated in mixtures of hydrogen and nitrogen are nowadays used as a source of active species for various kinds of applications from etching of low-k materials to modifications of polymer surfaces for biomedical applications. Moreover these kinds of discharges can provide information relevant for studies of planetary atmospheres. The present work involves the study of a low pressure capacitively coupled RF discharge operated in variable mixtures of N2 and H2 at variable pressures and powers. The systematic measurements of electron density, RF voltage, self bias and the observation of several molecular bands by means of optical emission spectroscopy gave us important information about basic processes relevant for the understanding and application of such kind of discharges. The experimental results are interpreted by means of a hybrid model, namely the effect of admixing hydrogen into a N2 discharge.

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