

Abstract Submitted  
for the GEC06 Meeting of  
The American Physical Society

**Electrical and Optical Characterization of a pulsed plasma of N<sub>2</sub>-H<sub>2</sub>**<sup>1</sup> HORACIO MARTINEZ, Centro de Ciencias Fisicas, Universidad Nacional Autonoma de Mexico, FAROOK BASHIR YOUSIF, Facultad de Ciencias, Universidad Autonoma del Estado de Morelos — This paper considers the electrical and optical characterization of glow discharge pulsed plasma in N<sub>2</sub>/H<sub>2</sub> mixture at pressures of 0.5-4.0 Torr and discharge current between 0.2 and 0.6 A. The discharge current and the applied voltage are measured using conventional techniques. The emission from the pulsed plasma of a steady-state electric discharge in a N<sub>2</sub>/H<sub>2</sub> mixture in the wavelength range 200-600 nm is investigated. It is shown that, at a range pressure of 0.5 to 4.0 Torr, the discharge mainly emits within the wavelength range 280-500 nm. The emission consists of N<sub>2</sub>(C-X) 316 nm, 336 nm, 358 nm narrow peaks and a broad band with a maximum at  $\lambda_{max} = 427$  nm. Also bands of N<sub>2</sub>, N<sub>2</sub><sup>+</sup> and NH excited states were observed. All bands have their maximum intensity at the discharge current of 0.4 A. The intensities of the main bands are determined as functions of the pressure and discharge current.

<sup>1</sup>This research was partially sponsored by DGAPA IN-109103 and CONACyT 41072-F.

Horacio Martinez  
Universidad Nacional Autonoma de Mexico

Date submitted: 17 May 2006

Electronic form version 1.4