

Abstract Submitted
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A pulsed nitrogen discharge: A global (volume averaged) model study E.G. THORSTEINSSON, J.T. GUDMUNDSSON, Science Institute, University of Iceland — A time dependent global (volume averaged) model is applied to study a pulsed low pressure (1 - 100 mTorr) high density nitrogen discharge. The electron density, electron temperature and the density of ions and neutral species is evaluated for various discharge pressures, pulse frequencies and duty cycles. In particular the dissociation of the nitrogen molecule and the role of metastable nitrogen molecules $N_2(A)$ and metastable nitrogen atoms $N(^2D)$ and $N(^2P)$ is explored. The density of the metastable nitrogen atoms $N(^2D)$ and $N(^2P)$ is found to be significant. Furthermore, we explore how the neutral/ion flux ratio Γ_N/Γ_+ varies with duty cycle and pulse frequency.

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