

Abstract Submitted  
for the GEC09 Meeting of  
The American Physical Society

**Transport Coefficients for Electrons in BF<sub>3</sub>** ZORAN LJ. PETROVIC, ZELJKA NIKITOVIC, Institute of Physics, OLIVERA SASIC, Faculty of Transport and Traffic Engineering, ZORAN RASPOPOVIC, VLADIMIR STOJANOVIC, Institute of Physics, SVETLANA RADOVANOV, Varian Semiconductor Equipment Associates — We use the available cross section data [1] for electron impact on BF<sub>3</sub> supplemented by newly calculated cross sections for total scattering, electronic excitation and ionization [2]. Monte Carlo simulation was applied to perform calculations of transport coefficients as well as rate coefficients in DC and RF electric fields. Since BF<sub>3</sub> has a high threshold for attachment a presence of some of the F or F<sub>2</sub> radicals would affect the properties of plasma significantly. Thus we have supplemented the cross section set by the cross section data for the two radicals and made calculations for different abundances. In addition calculations in crossed electric and magnetic (ExB) fields have been made together with calculations for time resolved coefficients ( $E(t) \times B(t)$ ). We discuss the differences between the original and new cross section set and try to discuss how these will affect the operation of discharges used for ion implantation.

[1] S. Biagi, 2005 unpublished.

[2] M. Vranic, J. Varhambia, M. Radmilovic, J. Tennyson, Z. Lj. Petrovic 2009 to be published.

Zoran Lj. Petrovic  
Institute of Physics

Date submitted: 11 Jun 2009

Electronic form version 1.4