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Numerical simulation of pulsed plasma sheath dynamics in an oblique magnetic field ABOLFAZL MAHMOODPOOR, HAMID GHOMI, SHAHRYAR MIRPOUR, DBD Laboratory, Laser and Plasma Research Institute of Shahid Beheshti University, Evin, Tehran, Iran, DBD COLLABORATION — During past several years many authors [1-2] have investigated plasma sheath structure in an oblique magnetic field, that called magnetized plasma sheath, and their work is mainly in steady state case. In this paper, the dynamic of magnetized pulsed plasma sheath are simulated. We applied an exponentially voltage to the cathode and investigate the temporal and spatial evolution of electric field, ion and electron density. For implement of our main motivation, we used two dimensional fluid model and solved numerically Poisson's equation, continuity and momentum transfer equations for ions by FDT method to determine electric potential, density and speed of ions. To complete our equations system, also assume that electron density identified by Boltzman equation. Therefore we consider a plasma sheath with two dimensions coordinate space and three dimensions of speed. It is shown that electric field of pre-sheath, ion and electron density fluctuate during pulse time and spatial length of electron density fluctuation increase with increasing of magnetic field magnitude.

[1] Zou X, Liu J-y, Gong Y, Wang Z-X, Liu Y, Wang X-G, *Vacuum* **73**, 681-685 (2004).

[2] M. M. Hatami, A. R. Niknam and B. Shokri, *Vacuum* **83**, (2009)231-234

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