Contribution ID: **1274** Type: **Poster**

1P40 - Data storage of particle-in-cell simulations for big data analysis of capacitively coupled plasma reactors

Monday 24 June 2019 13:00 (1h 30m)

Capacitively coupled plasmas (CCPs) are widely utilized in etching and deposition processes in semiconductor manufacturing. Nowadays, the nonuniformity of plasma density and temperature distributions is a critical issue near the wafer edge which results in non-uniform etching or deposition profiles. Computer simulation is a good tool to understand the background physics of the nonuniformity and to find a better condition to keep uniformity at the edge. Notably, a particle-in-cell (PIC) simulation is an excellent method to investigate the electron energy probability function (EEPF) which is essential for the control of electron heating mechanism and chemical reactions. In this presentation, we report the spatial changes of EEPF in a two-dimensional PIC simulation for CCP reactors. In order to find out the tendency of the plasma properties over wide parameter variations, a big data analysis is designed to utilize the data storage of PIC simulation results. HBase that runs on top of Hadoop eco system is used to store a large amount of PIC simulation data, which organizes the essential data into two kinds of tables for effective data management.

Authors: Ms KIM, Yeun Jung (Pusan National University); Dr KIM, Jin Seok (Pusan National University); Prof. LEE, Hae June (Pusan National University)

Presenter: Ms KIM, Yeun Jung (Pusan National University)

Session Classification: Posters Fundamental Research and Basic Processes and Power Electronics

Track Classification: 1.2 Computational Plasma Physics;