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Simulation of Large Area Inductively Coupled Plasmas using CF4/O2 Gas for Dry Etching of a Flat Panel Display GEONWOO PARK, MIN YOUNG HUR, Pusan National University, CHANGROK CHOI, HOONBAE KIM, LG Display, M. J. KUSHNER, University of Michigan, HAE JUNE LEE, Pusan National University — As the demand for larger area display increases, the plasma uniformity is required in a chamber size of 2200 mm by 2500 mm (the 8th generation) or larger. The fluid simulation of a large area inductively coupled plasma (ICP) source is presented for the investigation of etch profiles and for the analysis of uniformity control. The plasma is produced by three by three ICP sources for the 8th generation flat panel display. The substrate is also biased with an RF source of 13.56 MHz in order to get high etching rate. Hybrid Plasma Equipment Model (HPEM) code is used for the simulation of CF_4/O_2 gas mixture, and the results are compared with experimental measurement of etch profiles. The generation and the transport of each species are analyzed for the variation of the input power and the bias voltage. Finally, the ratio of ion fluxes to neutral fluxes is compared with the etching profiles obtained by experiment.

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