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Modeling of a 2f-CCP in SF_6/O_2 for high-speed MEMS processiong FUKUTARO HAMAOKA, TAKASHI YAGISAWA, TOSHIAKI MAKABE, Keio University — MEMS (Micro Electro Mechanical Systems) device processing has been developed on the basis of the techniques utilized in microelectronic device fabrications. For a MEMS processing, Si etching with high-speed ($> 100\ \mu$m min^{-1}) and high-selectivity (> 100) is required due to the large scale of trench/hole profiles with several hundred μm in width and depth, as compared with semiconductor devices. In the etching of a large scale structure on a wafer, the sheath tends to wrap around the corner of the structure (plasma molding), which strongly affects the ion flux, energy and angular distribution. In the present study, a self-consistent modeling of a 2f-CCP in SF_6/O_2 practically used in industry will be performed at 300 mTorr. We will mainly focus on the 2D-t structures SF_6/O_2 plasma under the presence of large scale structure on a wafer. We use a small spatio-mesh at the vicinity of the wafer in order to predict the distorted sheath structure in a self-consistent system of 2f-CCP. That is, the sheath is distorted on the large-scale trench corner and is radially nonuniform on the wafer.

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