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Influence of a micro-scale wafer structure upon sheath profile in 2f-CCP in SF₆/O₂ FUKUTARO HAMAOKA, TAKASHI YAGISAWA, TOSHI-AKI MAKABE, Keio University — MEMS-dry processes have been developed on the basis of plasma technologies in microelectronic device fabrications. Deep Si etching for MEMS requires a high speed, selective and anisotropic process having several tens or hundreds μm in width and depth as compared with that of ULSI elements. During the MEMS process at hundreds mTorr, the sheath thickness in front of the surface to be etched will be comparable to or smaller than the trench/hole width, and a distorted sheath field will have a strong influence on the incident ion flux and velocity distribution (i.e., plasma molding). In the present study, we will estimate the local characteristics of the plasma molding, i.e., the ion velocity distribution incident on a micro scale patterned wafer by using a series of repetitive calculation of the structure from cm to μm in 2f-CCP in SF₆/O₂ at 300 mTorr. Further investigation will be given for the feature profile of a Si-MEMS by plasma etching in the 2f-CCP system.

Fukutaro Hamaoka
Keio University

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