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2D-Combined ICP/CCP numerical modeling for RF plasma source MASARU MIYASHITA, Sumitomo Heavy Industries, Ltd., KEI IKEDA, ATHENASYS Ltd., SYUTA OCHI, Sumitomo Heavy Industries Ion Technology Co., Ltd. — A numerical investigation of sputtering distribution on antenna cover in Radio Frequency (13.56MHz) plasma(RF plasma) source by energetic ions bombardment has been performed including influences of static electric field from voltage of antenna and of inductive electric field from current of antenna. In order to validate the developed technique, the static electron heating distribution and the inductive electron heating distribution in simulation are compared. The comparison shows the static electric field is shielded in the sheath of the high electron density ($10^{17}\mathrm{m}^{-3}$) plasma and the plasma is sustained by inductive electric field from current of antenna. The deep sheath potential in simulation is generated over the region of large vulnerable in experiment. The numerical simulation technique with calculating static electric field and inductive electric field is important for development of the RF plasma source with large current and long life time.

Masaru Miyashita
Sumitomo Heavy Industries, Ltd.

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