



Contribution ID: 111

Type: Poster

Probe Measurement of an ECR Hydrogen Plasma Facing the C12A7 Electride Surface

Plasma parameters of an ECR (electron cyclotron resonance) discharge excited in a compact (5 cm diameter, 3.3 cm long inner volume) ion source with the replaceable plasma electrode (PE) were measured with a Langmuir probe. A plasma electrode (PE) made of a C12A7 “electride” constituted with $^{12}\text{Ca}^{\text{O}}$ and $7\text{Al}_2\text{O}_3$ supplied by AGC Inc., was installed to investigate how the electride PE changes the plasma parameters from those with Mo PE. The effect upon the plasma parameters in front of the PE due to the material will be elucidated by changing the probe position radially from the ion source center axis above the extraction hole to the periphery, and axially along the beam extraction direction.

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Funding Information

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Session Classification: Poster Session 2

Track Classification: Negative ion sources