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## **Improvement of Velocity Distribution Function of Hydrogen Atoms in Ion Source Discharges**

*Tuesday 21 September 2021 05:30 (20 minutes)*

A negative hydrogen ion source is operated by injecting Cs to reduce the amount of coextracted electron current while maintaining large extraction current of negative hydrogen (H<sup>-</sup>) ions. The production efficiency of H<sup>-</sup> ions from the low work function Cs covered plasma grid (PG) surface should be heavily dependent upon the velocity distribution of hydrogen atoms (H<sub>0</sub>) striking the PG surface and an electron cyclotron resonance plasma source is studied the performance if it can efficiently produce high speed H<sub>0</sub> without contaminating the cesiated PG surface. A system to measure the H<sub>0</sub> velocity distribution functions has been designed and the performance is being improved. A pumping capacity of the H<sub>0</sub> ionizer section of the system is increased so as to make the velocity distribution function measurement with enough signal to noise ratio.

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