

Abstract Submitted
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VUV spectroscopic diagnostics of the vibrational temperature to the ground state of hydrogen molecules in recombination plasma TAKAAKI IJIMA, AKIRA TONEGAWA, TOMOHIKO ONO, TAKASHI TORADA, KAZUTAKA KAWAMURA — The vacuum ultraviolet (VUV) spectroscopic method has been evaluated for measuring of the vibrational temperatures T_{vib} of H_2 to the electronic ground state in hydrogen recombination plasma. This is inferred from the comparison of simulated Lyman, Werner spectra for H_2 taking into account radiation trapping effects with measured VUV spectra in the range from 90 to 150 nm. T_{vib} of H_2 is around 4000-5000K in hydrogen plasma at the discharge current of 50 A and electron temperature of 10 eV. With increasing the gas pressure, T_{vib} decreases and remains constant at 1000 K in the recombination plasma.

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