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Plasma distributions observed in a 2.45 GHz hydrogen discharge

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Abstract-

The existence of various spatial distributions of hydrogen plasma in a pulsed 2.45 GHz microwave discharge is demonstrated. The data has been obtained through optical emission diagnostics utilizing an ultra-fast CCD camera system with multi-channel plate (MCP) intensifiers, and a wavelength-filtered photodiode recording temporal light emission signals of hydrogen atoms and molecules. It has been observed that the magnetic field topology and strength are determining the transitions between different plasma patterns and spectral saturation times while neutral gas pressure and microwave power show a weaker influence on the profiles but affect the emitted light intensity.

Index Terms-

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