

Abstract Submitted
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Helicon plasma produced using a flat spiral antenna¹ TAKAO TANIKAWA, Tokai Univ., Kanagawa, Japan, SHUNJIRO SHINOHARA, Kyushu Univ., Fukuoka, Japan, KYOICHIRO TOKI, Tokyo Univ. of Agriculture & Technology, Tokyo, Japan — A large volume (75 cm in diameter and 486 cm in axial length) helicon-plasma device has been developed, and the plasma characteristics in the device have been investigated [1]. The device utilizes a large flat spiral antenna (43 cm in diameter) for plasma production installed just outside a quartz-glass window at the end of the vacuum chamber. Unique properties of the device (such as, its high discharge efficiency and easily adjustable radial density profile) will be summarized. In addition, a new device (20 cm in diameter, and 100 cm in axial length) with a new type of flat antenna for plasma production has recently been completed. This antenna consists of four concentric broken circular elements. By changing the connection among the antenna elements, waves with a higher azimuthal mode number can be excited. Preliminary experimental results using this device will be presented. [1] S. Shinohara and T. Tanikawa, Rev. Sci. Instrum. **75**, 1941 (2004); Phys. Plasmas **12**, 044502 (2005).

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