

Abstract Submitted
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Observation of Novel Instability by using Microwave Imaging Reflectometry in LHD¹ SOICHIRO YAMAGUCHI, YOSHIO NAGAYAMA, ZHONGBING SHI, National Institute for Fusion Science, YUICHIRO KOGI, AT-SUSHI MASE, Art Science and Technology Center for Cooperative Research, Kyushu Univ. — A novel instability with higher harmonics has been observed in the Large Helical Device (LHD) by using Microwave Imaging Reflectometry (MIR). The instability appears during NBI or ICRH heating, and it is radially localized near the rational surface with the rotational transform of unity. The density fluctuation has a fundamental frequency of 1 ~ 10 kHz which depends on the ion temperature. The frequency is several times higher than the diamagnetic frequency of the thermal ions, and is much lower than the frequency of the Alfvén Eigen modes. The similar spectrum is also observed in the magnetic probe signals. It is suggested that the mode may be destabilized by the energetic ions and related to the pressure gradient of the thermal ions.

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