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**Suppression of Electron Temperature Gradient Mode by Controlled ExB Velocity Shears in Magnetized Plasmas** CHANHO MOON, TOSHIRO KANEKO, RIKIZO HATAKEYAMA, Tohoku University — A high-frequency ( $\sim 5$  MHz) instability is observed when an electron temperature gradient (ETG) perpendicular to magnetic field lines is formed in an electron cyclotron resonance (ECR) discharge plasma, which is consistent with an ETG mode. On the other hand, ExB velocity shears can be controlled independently of the ETG by changing the bias voltages of concentrically segmented electron emitters. As the result, it is found that the ETG mode amplitudes decrease with increasing the strength of the ExB velocity shears. In addition, the ETG mode is suppressed more effectively in the presence of an electron density gradient, which suggests that the density-gradient driven mode compensates the temperature-gradient driven mode. In conclusion, our experiment clearly demonstrates the suppression of the ETG mode, which is affected by the ExB velocity shears and the electron density gradient.

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