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Power dissipation mode transition by a magnetic field

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We measured electrical characteristics of transversely magnetized capacitively coupled plasma at low pressure(10 mTorr). From these measurements, we found that the power characteristics of the

magnetized discharge were different from those of the unmagnetized discharge. As the magnetic field increases, a square dependence of power characteristic at high current changes to a linear dependence. This can be understood as a power dissipation mode transition by a magnetic field. A calculation from a simple sheath model agrees well with the experimental data.