Magnetothermal instability of plasmas in a horizontal magnetic field[1] HAIJUN REN, University of Science and Technology of China, ZHENGWEI WU, City University of Hong Kong, JINTAO CAO, University of Science and Technology of China, PAUL CHU, City University of Hong Kong — The linear buoyancy instability in a magnetized plasma, generally referred to as magnetothermal instability (MTI), is investigated by considering anisotropic heat conduction. The external magnetic field is assumed to be horizontal and background heat flux is not taken into account. The general dispersion relationship of the convective instability is derived. The growth rate of the MTI in fixed boundary condition is presented and discussed. The effect of density special gradient on the MTI is investigated. The magnetic field is shown to suppress the MTI and even quench the instability when the magnetic field is strong enough. Under the standard Wentzel- Kramaers-Brillouin (WKB) approximation, our results could be simplified to a brief form reported by one previous paper (E.Quataert, Astrophys. J. **673**, 758 (2008)).

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