



The possibility of lightning in extrasolar atmospheres

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Clouds are an integral part of the atmospheres of very low mass, planetary objects outside our solar system. Clouds determine the local chemistry and they influence the radiative and convective energy transport. Clouds may further provide an important source of ionisation as thermal gas ionisation is declining with decreasing effective temperature in the planetary regime. Dust clouds can, hence, play an important role in coupling the large-scale magnetic field to very cool atmospheres, or in producing lightning in extrasolar planets.

Using our detailed kinetic model of dust cloud formation, I will discuss why exoplanetary atmospheres are susceptible to lightning much comparable to the cloud-hosting solar system planets.