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## **Magnetic interaction of stellar coronal mass ejections with the atmosphere of close-in exoplanets: comparison with Ly-alpha transits**

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It has been understood that solar coronal mass ejections (CMEs) plays a very important role in disrupting the atmospheres of solar system planets. For close-in exoplanets, the stellar radiation drives thermal planetary outflow that further interacts with the stellar wind and stellar coronal mass ejections making it susceptible to non-thermal loss. How CMEs are going to affect atmospheric loss depends on various CME properties such as density, velocity, temperature, and magnetic field of CME plasma. For the planets with the magnetosphere, the embedded magnetic field in the CMEs is the most important parameter to affect the planetary mass loss. In this talk, I will be discussing the effect of different magnetic field structures of stellar CMEs on the atmosphere of hot Jupiter with a dipolar magnetosphere. We use a 3D MHD atmospheric escape model, which self-consistently models the atmospheric outflow with the included planetary magnetosphere and its interaction with the CMEs. We consider three configurations of magnetic field embedded in stellar CMEs -- (a) radial component, (b) Bz component, (c) southward Bz component. We calculated atmospheric mass loss for these three different cases and found that CMEs with Bz components are most effective in removing planetary materials. We also calculated the Ly-alpha transit signatures for HD189733b in the different phases of the CME passage for the three cases. Ly-alpha transit signature varies with different magnetic structures of CMEs.