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Wave reflection-driven accretion in active solar-type star winds

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In MHD simulations for winds from active solar-type stars by Suzuki et al.(2013), intermittent but long-time accretion phenomena were observed even though the Poynting flux associated with Alfven waves is directed outward. In this talk, we present the detailed mechanism how this counter-streaming accretion takes place. Alfven waves generated from a stellar surface are stochastically trapped in a transient density hole, and the magnetic pressure with the waves further dig the density hole. Eventually, this hole works as an efficient mirror against out-going Alfven waves. As a result, out-going waves are reflected and the reflected component excites counter streaming flow.

Keywords: Wave, MHD, stellar wind, accretion