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**Ion Heating Via Excitation of Lower Hybrid In a Laser Plasma System** AYUSHI VASHISTHA, DEVSHREE MANDAL, Institute For Plasma Research, AMITA DAS, Indian Institute For Technology, Delhi — Coupling of laser energy directly into ions has been a challenging task due to huge mass difference between electron and ion species. However, it has been recently reported by us that with the application of an external magnetic field, it is possible to couple laser energy directly into ions [1]. Upon further investigation of the coupling mechanism, we identify the accessibility condition for the mechanism to be operative. Furthermore, we demonstrate how excitation of lower hybrid helps in the proposed mechanism. This work can find application where high energy needs to be dumped into plasma through ions instead of energetic electrons, thereby avoiding current generated instabilities. Also, our study explains various astrophysical observations where ion heating or soliton formation due to lower hybrid mode has been reported. References: [1]A. Vashistha, D. Mandal, A. Kumar, C. Shukla, and A. Das, “A new mechanism of direct coupling of laser energy to ions,” *New Journal of Physics*, vol. 22, p. 063023, jun 2020.

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