Contribution ID: **1371** Type: **Talk**

Lepton-driven Non-resonant Streaming Instabilities

Friday 16 July 2021 13:15 (12 minutes)

Using fully-kinetic plasma simulations, we study the non-resonant (Bell) streaming instability driven by energetic leptons. We identify the necessary conditions to drive the Bell instability and the differences from the standard proton-driven case in both linear and saturated stages. A simple analytic theory is presented to explain simulations. Our findings are crucial for understanding the phenomenology of astrophysical environments where only electrons may be accelerated (e.g., oblique shocks) or where relativistic pairs are produced (e.g., around pulsar wind nebulae).

Keywords

Collaboration

other Collaboration

Subcategory

Theoretical Results

Primary authors: GUPTA, Siddhartha (University of Chicago); CAPRIOLI, Damiano (University of Chicago); HAGGERTY, Colby (Institute for Astronomy, University of Hawaii)

Presenter: GUPTA, Siddhartha (University of Chicago)

Session Classification: Discussion

Track Classification: Scientific Field: CRI | Cosmic Ray Indirect