

## Nonstationary supercritical perpendicular shock waves

# MAKIKO OONISHI[1], Tohru Hada[2], Bertrand Lembege[3]

[1] E.S.S.T., Kyushu Univ., [2] ESST, Kyushu Univ, [3] CETP/CNRS

[http://www.esst.kyushu-u.ac.jp/CDS/index\\_j.html](http://www.esst.kyushu-u.ac.jp/CDS/index_j.html)

Collisionless shocks are commonly found in space. When the ratio of reflected to incoming ions is high, the shock may become nonstationary. We discuss stationarity of supercritical perpendicular shocks by using a method similar to the hybrid simulation, in which we iteratively seek for a self-consistent profile of ion distribution and electromagnetic field. We report results of our parametric survey varying the upstream Mach number, the fraction of the reflected ions, and thermal velocities of the upstream and the reflected ions.

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