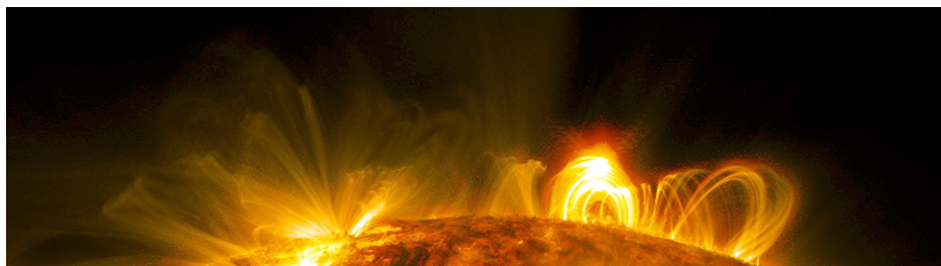


Particle Acceleration in Solar Flares and the Plasma Universe – Deciphering its features under magnetic reconnection



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Particle acceleration in the Earth's magnetotail

Wednesday, November 17, 2021 12:30 PM (30 minutes)

Magnetic reconnection is a fundamental universal energy conversion process which converts magnetic energy into particle energy including heating and non-thermal acceleration. In the low Beta plasma of the Earth's magnetotail magnetic energy is released quasi-regularly by the reconnection process, leading to explosive energy release similar to the energy build-up and release process in solar flares. We present recent in-situ Magnetospheric MultiScale (MMS) observations of reconnection-associated particle heating and acceleration in the low Beta, high Alfvén speed regime of Earth's magnetotail. The degree of heating observed in different events vary greatly, suggesting that the characteristics of electron heating depend strongly on plasma parameter regimes. The non-thermal electron energy content, on the other hand, does not show any such dependence.

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