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An introduction to diffusive shock acceleration in space sciences

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Diffusive shock acceleration is thought to be a primary mechanism by which particles gain energy at shock waves in magnetized media. We provide an introduction to the basic physics of these shocks and the associated acceleration of non-thermal charged particles, and explain how the effects of this acceleration mechanism are incorporated into models of energetic particle transport in the heliosphere. Furthermore, we illustrate the relevance of shock acceleration in the context of space sciences, discussing its involvement at the solar wind termination shock and during space-weather events, such as coronal mass ejections and the acceleration of energetic storm particles.

Apply to be
 considered for a student
   award (Yes / No)?

Yes

Level for award
 (Hons, MSc,
   PhD, N/A)?

PhD

Main supervisor (name and email)
and his / her institution

Dr RD Strauss, Dutoit.Strauss@nwu.ac.za, North-West University

Would you like to
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No

Primary author: Mr PRINSLOO, Phillip (Centre for Space Research, North-west University)

Co-author: Dr STRAUSS, Du Toit (Centre for Space Research, North-West University)

Presenter: Mr PRINSLOO, Phillip (Centre for Space Research, North-west University)

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