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4. High energy cosmic rays (HE-CR I)

Cosmic rays in astrospheres

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We model the cosmic ray flux in a stellar wind cavity of a O or B type star using a transport model based on stochastic differential equations. The required parameters, for example the coefficients of the diffusion tensor, are determined from an underlying magneto-hydrodynamical model. We discuss the transport in different astrospheric models with varying parameters for the transport coefficients. We will argue that large stellar wind cavities can act as sinks for the galactic cosmic ray flux.