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Cosmic ray modulation error for 2D SDE SOLARPROP model

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For comprehensive global modeling of cosmic rays modulation in the heliosphere, it is essential to have a sound transport theory, and reliable numerical schemes with appropriate boundary conditions. For the description of the solar modulation process, and the propagation of the particles inside the heliosphere, Parkers transport equation is widely used. The correct and precise solution of this equation also must take into consideration errors. That's why the presented work particularly focused on the estimation of the errors of the SOLARPROP model, based on the input parameters range, and statistical errors for these numerical solutions of 2D Parkers equation by stochastic differential equation method to suggest the safe simulation strategy for spectra evaluation at 1 AU.

Primary author: MYKHAILENKO, Viacheslav (Pavol Jozef Safarik University in Kosice)

Co-author: Dr BOBIK, Pavol (Institute of Experimental Physics SAS)

Presenter: MYKHAILENKO, Viacheslav (Pavol Jozef Safarik University in Kosice)

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