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DRAGON2 : A novel code for Cosmic-Ray transport in the Galaxy

Wednesday, 14 September 2016 17:45 (15 minutes)

In this talk we introduce DRAGON2, the new version of the public software package designed to study Cosmic Ray (CR) propagation in the Galaxy. Our aim is to illustrate the approach followed in the writing of the code and to present its most important features. We describe the properties of the numerical scheme that has been adopted to implement all the processes related to CR transport and we investigate its correctness by comparing our numerical results with a set of analytical solutions. Starting from these validation tests, we study in detail the performances of the code by probing the different factors that influence its accuracy and its speed under a wide range of different conditions. The second part of the talk is focused on the propagation of leptons. In particular, we investigate how the new features introduced in DRAGON2 in the treatment of diffusion, energy losses and reacceleration can impact the predicted fluxes, in comparison also with the results given by other numerical codes.

Summary

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