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Spatial Distribution of Galactic Cosmic Ray Sources

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Abstract content

Different locations in the galaxy are unequally participating into the production of elements and isotopes observed in the solar system. In this work, we present a model that includes spatial dimensions as a basic element. The backward stochastic solution introduced in this paper will allow us to determine the abundance of each nucleus at certain energy and a single location in the galaxy. A test particle is allowed to follow a stochastic path starting from the solar system and runs backward in time till hitting the galaxy boundary. The abundance for each nucleus is recorded at certain energy and single location in the stochastic path. This method is very flexible in controlling the size of the time step, which will result in more detailed structure of different locations in the galaxy. The control of the size of the time step in the detailed stochastic path is a very big advantage for this model, since it can reveal a lot of detailed structure in the galaxy. The presented model is also capable to find out galactic locations containing sources of production of certain nuclides.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 2 (OG part 1), pages 171-174

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