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A Possible Mechanism to Form the Source Composition of Galactic Cosmic Rays as Viewed from the Fractionation of Heavy Elements in Carbonaceous Chondrites

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Abstract content

Referring to the observed data in the depletions of elements in the interstellar clouds, the chemical composition of dust grains has been deduced, though it is highly variable among these clouds. This variability seems to reflect upon the place where such dust grains are formed inside these clouds. Deep inside the clouds, the chemical composition of dust grains is well coincident with that of carbonaceous chondrites as classified as CI. Since the source composition of galactic cosmic rays is much more abundant in refractory and siderophile elements, being classified as heavy and ultra-heavy ones, as compared with those as contained in carbonaceous CI chondrites, the most of volatile elements must have been lost during the process which took place in forming the matter as identified to be “seed mass” which is to be later accelerated to cosmic ray every this process seems necessarily to be associated with the heating and ionization of dust grains formed within interstellar clouds. Volatile elements must have effectively been lost from chondrites through that process, which becomes process, and then form the seed mass, which becomes the source matter from which cosmic rays are generated afterward.

If this paper 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 133-136

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