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Heavy Cosmic Rays in the Galaxy: Latest Results from AMS on the International Space Station

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The measurement of the various cosmic-ray fluxes of nuclei are paramount for the understanding of the propagation in the galaxy and the determination of relevant physical quantities like the diffusion coefficient and the halo size. Due to its large acceptance and long mission onboard the International Space Station, AMS has performed precise measurements of 16 fluxes of nuclei in cosmic rays in the rigidity range from 2-3 GV to 2-3 TV with detailed study of systematic errors, thanks to its highly specialised redundant subdetectors. AMS results reveal the existence of distinct groups of cosmic rays —besides the traditional division between primary and secondary cosmic rays— based on their rigidity dependence, as well as interesting properties which have allowed for a better understanding of the propagation processes in the galaxy. This contribution will present the 11-year measurements of cosmic-ray nuclei done by AMS, its implications and the comparison with the state-of-the-art GALPROP-HELMOD model, with special attention to the latest measurements of heavy nuclei.

Abstract

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