

Cosmic Rays and Particle Physics

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A century has passed since V. Hess discovered the cosmic-ray (CR) in 1912. Nature of CR was revealed soon through the discovery of the east-west asymmetry effect, namely it consisted of mainly proton with very high energy, and heavy nuclei were subsequently discovered as well. In this talk, I overview the history of CRs from the view point of particle physics, focusing upon the Brasil-Japan Emulsion Chamber Collaboration in connection with the accelerator physics. While galactic CRs were discovered more than hundred years ago, the acceleration and subsequent propagation mechanisms in the Galaxy are still in open questions. I overview them briefly from the historical point of view, and then present recent developments based on the observational data, the 2-ry/1-ry ratio such as boron/carbon, isotopes such as ^{10}Be , antiproton, and electrons as well. I present the diffusion halo model to understand them, what is consistent, and what is inconsistent with each other.