

A Hierarchical Interpretation of the Observed Cosmic Ray Spectrum.

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Cosmic rays are observed at earth with energies from less than 100 MeV to more than 100 EeV. Undoubtedly, they have many sources but we explore the minimalist possibility that they mostly derive from diffusive shock acceleration over a range of scales associated successively with stellar winds, supernova remnants, galactic winds and intergalactic accretion onto filaments and clusters, with highest energy particles from one scale providing the injection for the next scale. Special attention will be paid to the contribution of the highest energy particles that escape ahead of strong shock fronts. Fairly robust and potentially refutable implications of this interpretation will be discussed.

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