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On the Non-universality of Diffusive Shock Acceleration

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Diffusive Shock Acceleration (DSA) is a prominent way of producing high-energy particles; one of its most appealing features is that it is expected to return power-law spectra, with a slope that only depends on the shock compression ratio.
I summarize how first-principles plasma simulations have shown that self-generated magnetic turbulence is crucial in controlling such a slope, too, and discuss how this reconciles observations of supernova remnants and radio relics in galaxy clusters.

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