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Título: Connecting complex networks to nonadditive entropies
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Resumo:

Boltzmann–Gibbs statistical mechanics applies satisfactorily to a plethora of systems. It fails however for complex systems generically involving nonlocal space–time entanglement. Its generalization based on nonadditive q -entropies adequately handles a wide class of such systems. We show here that scale-invariant networks belong to this class. We numerically study a d -dimensional geographically located network with weighted links and exhibit its “energy” distribution per site at its quasi-stationary state. Our results strongly suggest a correspondence between the random geometric problem and a class of thermal problems within the generalised thermostatistics. The Boltzmann–Gibbs exponential factor is generically substituted by its q -generalisation, and is recovered in the limit when the nonlocal effects fade away. The present connection should crossfertilise experiments in both research areas.