

Bekenstein Bound and Generalized Entropies

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We review the Bekenstein bound for thermodynamic entropy, and its derivation from arguments of black hole physics. Then we consider different generalized entropies as Tsallis q-entropy, Tsallis-Cirto delta-entropy, Barrow entropy, Tsallis-Jensen, and Renyi entropies. Using similar arguments, we establish new quantitative bounds on such entropies, arriving in this way to new formulations of the Bekenstein bound itself. We also briefly comment on the connections between the Bekenstein bound and the (generalized) uncertainty principle.