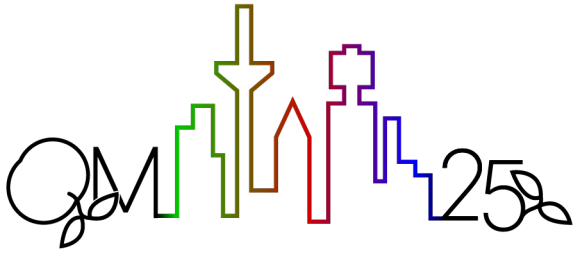

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# Particle production in high-energy collisions: a perspective from nonadditive statistics

Particles produced in high-energy collisions (e.g. protons on protons) are described by power-law distributions. One such power-law distribution used extensively in the phenomenological studies originates from the nonadditive statistical mechanics proposed by C. Tsallis. In this report, we describe a nonadditive generalization of the conventional Bose-Einstein distribution using a single-mode harmonic oscillator. This approach eliminates the need of a regularization procedure proposed in previous works. The same formalism stemming from nonadditive statistics has also been applied to study the fermionic oscillator in a thermal bath. Finally, the results are utilized to study experimental observations like transverse momentum spectra produced in high-energy collisions

## Category

Theory

## Collaboration (if applicable)

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