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Baryonic screening masses at high temperatures from lattice QCD

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We present the first non-perturbative calculation on the lattice of the baryonic screening masses in a wide range of temperature from 1 GeV up to $T \sim 160$ GeV. The calculation has been carried out by Monte Carlo simulations and exploits a new strategy to simulate extremely high temperatures which was recently used to compute the non-singlet mesonic screening spectrum for the first time in the same range of temperatures. The baryonic screening masses have been computed with a few permille accuracy in the entire range of temperatures. On one hand the bulk of the masses is given by the free theory value $3\pi T$ plus a few percent contribution due to interactions which is still visible even at the highest temperature we simulated. On the other hand chiral symmetry restoration manifests itself through the degeneracy of the parity partners screening masses, as expected by Ward identities associated with the presence of chiral symmetry.

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