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Computation of QCD meson screening masses at high temperature

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We compute flavor non-singlet meson screening masses in the chiral limit of QCD with $N_f = 3$ quarks. The calculation is
carried out at 11 temperatures covering from $T \approx 1$ GeV up to the electroweak scale. For each temperature we simulated
4 different lattice spacings, so as to be able to perform the continuum limit extrapolation with confidence at a few permille-accuracy. The calculation has been performed on large lattices to have finite volume effects under control.
In the entire range of temperatures explored, the meson screening masses deviate from the free theory result $2\pi T$ by at most a
few percent. Their values, however, cannot be explained by one-loop perturbation theory up to the electroweak scale, where the
pseudoscalar and the vector screening masses are still significantly different within our precision. Chiral symmetry
restoration manifests itself through the degeneracy of the pseudoscalar and scalar channels and of the vector and axial ones.

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