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## A $(2 + 1)$ -flavor lattice study of the pion quasiparticle in the thermal hadronic phase at physical quark masses

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We investigate the properties of the pion quasiparticle in the thermal hadronic phase of  $(2 + 1)$ -flavor QCD on the lattice at physical quark masses at a temperature  $T = 128$  MeV. We find that the pion quasiparticle mass  $\omega_0 = 111(3)$  MeV is significantly reduced relative to the zero-temperature pion mass  $m_\pi(T = 0) = 130(1)$  MeV, by contrast with the static screening mass  $m_\pi = 143(3)$  MeV, which increases with temperature. On the other hand the pion quasiparticle decay constant does not change much compared to the corresponding zero-temperature decay constant. The difference of the vector- and axialvector spectral functions serves as an order parameter of chiral symmetry restoration. By analyzing this quantity we conclude that chiral symmetry restoration is already at an advanced stage in the spectral function.

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