Finite temperature results, comparison between bare and renormalized mass

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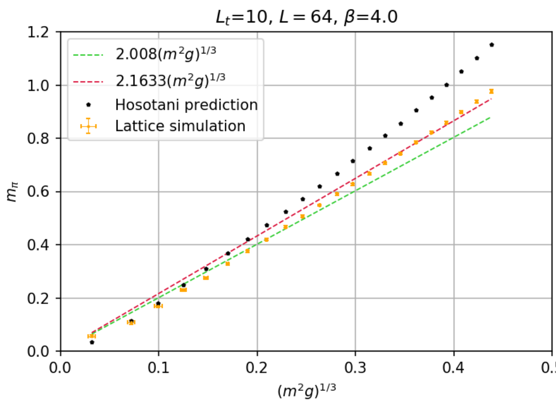
The input mass of the simulations (bare mass) can be calculated by using kappa critical k_c and the following expression for the hopping parameter

$$\kappa = \frac{1}{2(am+4)}, \tag{1}$$

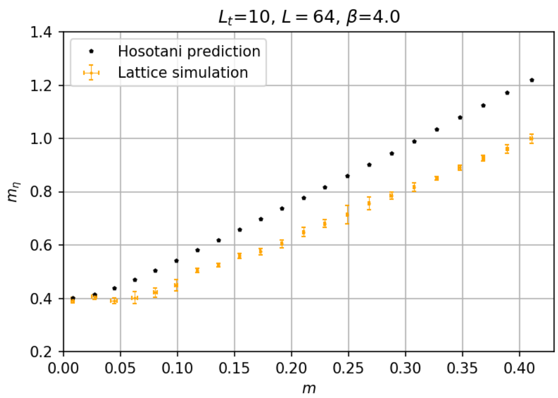
where a is the lattice constant. In lattice units, we can compute the bare mass as

$$m = \frac{1}{2\kappa} - \frac{1}{2\kappa_c}. \tag{2}$$

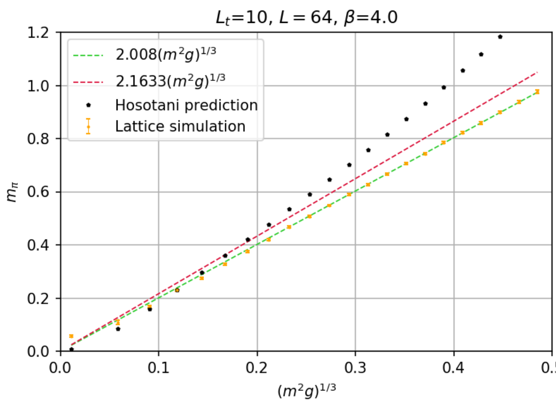
Previous simulations confirm that for $L_t = 10, 12, 16$, kappa critical is approximately 0.26273. We show a comparison of the finite temperature results with the bare and PCAC mass.



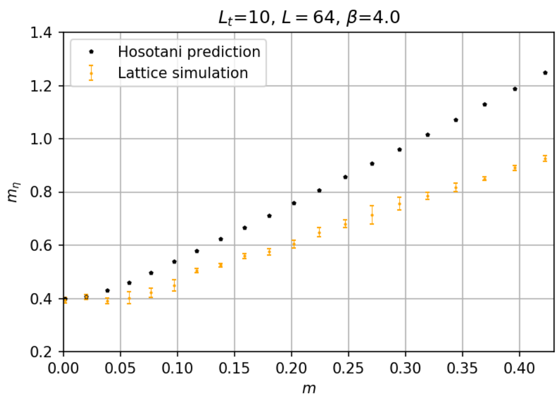
(a) m_π vs. $(m^2g)^{1/3}$ for the PCAC mass



(b) m_η vs. m for the PCAC mass

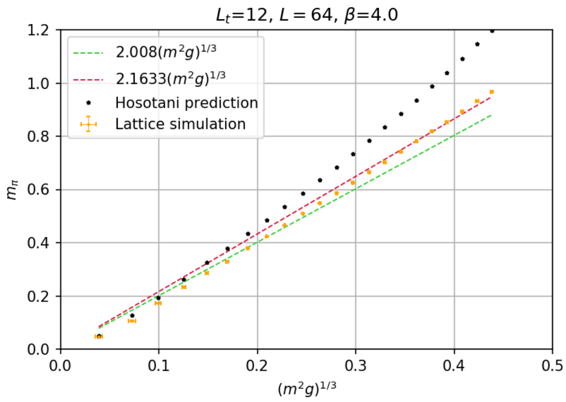


(c) m_π vs. $(m^2g)^{1/3}$ for the bare mass

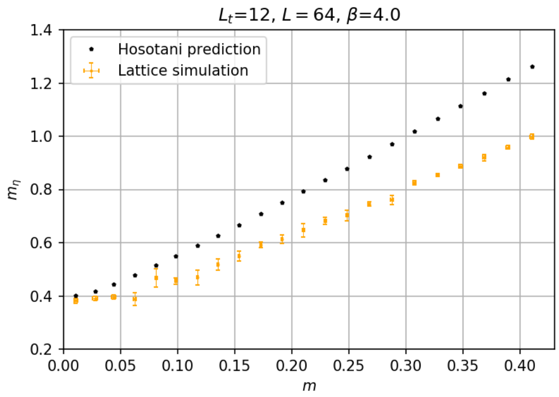


(d) m_η vs. m for the bare mass

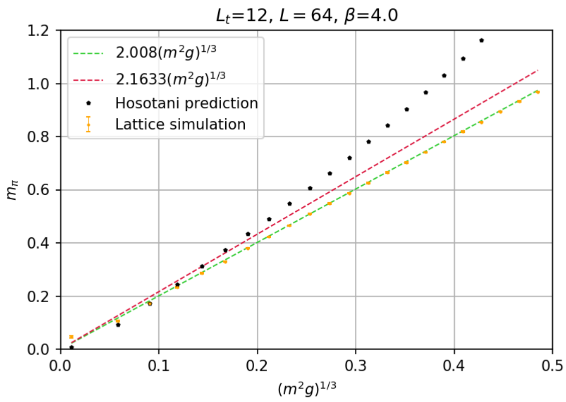
Figure 1: m_π and m_η as a function of the bare mass and the PCAC mass. $L_t = 10$.



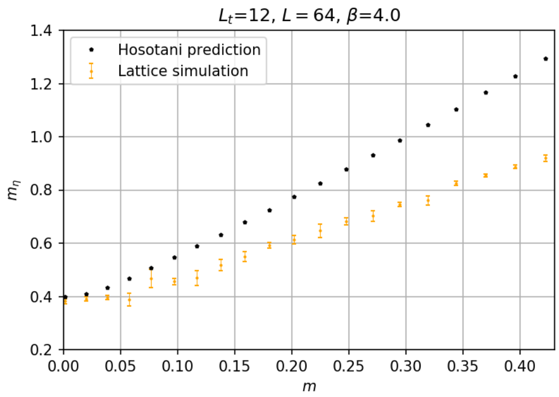
(a) m_π vs. $(m^2g)^{1/3}$ for the PCAC mass



(b) m_η vs. m for the PCAC mass

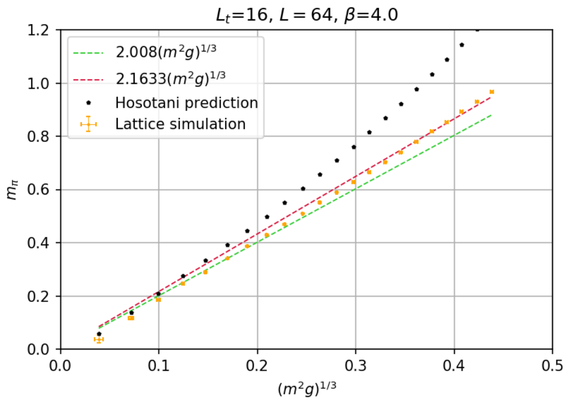


(c) m_π vs. $(m^2g)^{1/3}$ for the bare mass

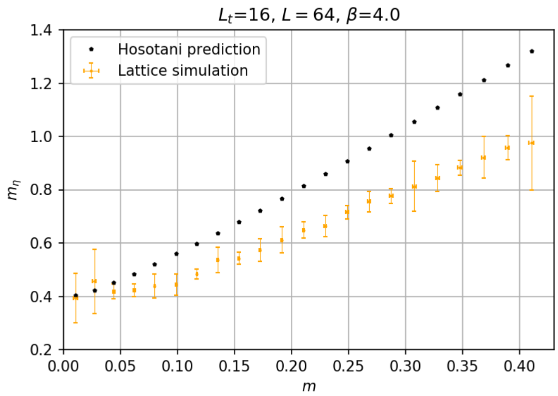


(d) m_η vs. m for the bare mass

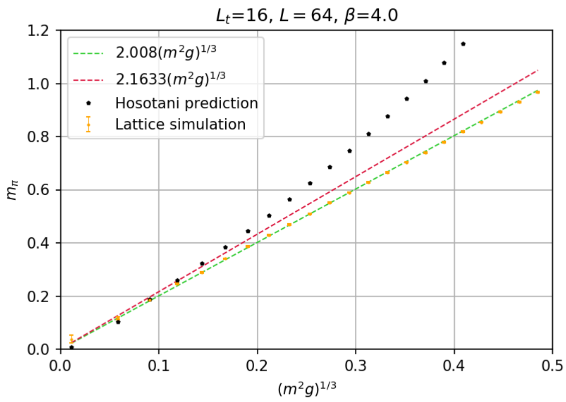
Figure 2: m_π and m_η as a function of the bare mass and the PCAC mass. $L_t = 12$.



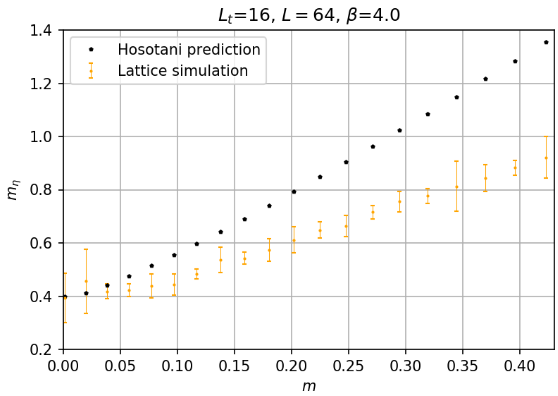
(a) m_π vs. $(m^2g)^{1/3}$ for the PCAC mass



(b) m_η vs. m for the PCAC mass



(c) m_π vs. $(m^2g)^{1/3}$ for the bare mass



(d) m_η vs. m for the bare mass

Figure 3: m_π and m_η as a function of the bare mass and the PCAC mass. $L_t = 16$.