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Non-perturbative renormalization of quark mass in $N_f=2+1$ QCD with the Schroedinger functional scheme

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We present an evaluation of the quark mass renormalization factor for $N_f=2+1$ QCD.

The Schroedinger functional scheme is used as the intermediate scheme. The regularization independent step scaling function of the quark mass is evaluated in the continuum limit.

The pseudo scalar density and the axial vector current renormalization factors are derived for the same action and the bare couplings as two recent large scale $N_f=2+1$ simulations of the CP-PACS/JL-QCD collaboration and that of PACS-CS collaboration.

The quark mass renormalization factor is evaluated to renormalized bare PCAC masses in these simulations.

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talk

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