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## Critical endline of the finite temperature phase transition for 2+1 flavor QCD around the SU(3)-flavor symmetric point

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We investigate the critical endline of the finite temperature phase transition of QCD around the SU(3)-flavor symmetric point at zero chemical potential.

We employ the renormalization-group improved Iwasaki gauge action and non-perturbatively  $O(a)$ -improved Wilson-clover fermion action.

The critical endline is determined by using the intersection point of kurtosis, employing the multi-parameter, multi-ensemble reweighting method to calculate observables off the SU(3)-symmetric point, at the temporal size  $N_T=6$  and lattice spacing as low as  $a \approx 0.19$  fm.

We confirm that the slope of the critical endline takes the value of  $-2$ , and find that the second derivative is positive, at the SU(3)-flavor symmetric point on the Columbia plot parametrized with the strange quark mass  $m_s$  and degenerated up-down quark mass  $m_l$ .

**Author:** Dr NAKAMURA, Yoshifumi (RIKEN)

**Co-authors:** Dr UKAWA, Akira (RIKEN); Dr TAKEDA, Shinji (Kanazawa University); Prof. KURAMASHI, Yoshinobu (University of Tsukuba)

**Presenter:** Dr NAKAMURA, Yoshifumi (RIKEN)

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