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We thank the referee for his comments and suggestions, which we have taken into account in the revised version:

Major changes :

We agree with the referee's major comment on our paper in its first version, i.e., in the referee's word, "*Certainly the authors carried out a new calculations with a sophisticated framework, but I wonder whether this paper presents new physics inherent to the novel features of the computations*". Following his suggestion, we have performed more computations and further studies, and focused on the role of strangeness degrees of freedom and its fluctuations. Furthermore, we have also investigated the effects of the mesonic fluctuations in the 2+1 flavor effective model within FRG. Relevant new results are presented in the revised version as follows

enumerate[1.]

I n the revised version, we have extended the only one baryon chemical potential μ_B in the old version to a set of chemical potentials for different flavors, i.e., $\mu_u = \mu_B/3 + 2\mu_Q/3$, $\mu_d = \mu_B/3 - \mu_Q/3$, and $\mu_s = \mu_B/3 - \mu_Q/3 - \mu_S$, which facilitates investigations of the fluctuations for different flavors and conserved charges. All the related formulas, such as the flow equation in Eq.(16), are modified. Note that while μ_B does not contribute to the mesonic loops in the flow equation, other chemical potentials indeed do, e.g., μ_s for open Kaons.

W e have investigated the fluctuation of the strangeness and its dependence on the quantum fluctuations of mesons, especially the Kaons. The relevant results are presented in Fig.5 in the revised version, where we also compare the fluctuations between the light and strange quarks. Relevant descriptions and discussions are presented in a paragraph beginning with "In Fig.5, we show the fluctuations of the light and" on page 8.

W e have extended the highest order of the generalized susceptibilities from the quartic to the sixth, which allows us to compare our calculated χ_6^B/χ_2^B with the lattice result in the right panel of Fig.4. In Fig.5 we also present relevant results of the sixth order.