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Critical Endpoint of QCD in a Finite Volume and Mesonic Contributions to the Columbia Plot

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We summarize recent results on the volume dependence of the location of the critical endpoint in the QCD phase diagram. To this end, we employ a sophisticated combination of Lattice Yang–Mills theory and a (truncated) version of Dyson–Schwinger equations in Landau gauge for 2 + 1 quark flavours. We study this system at small and intermediate volumes and determine the dependence of the location of the critical endpoint on the boundary conditions and the volume of a three-dimensional cube with edge length *L*. We also discuss quark number fluctuations in this setup. Additionally, we report on the chiral limit of the light quarks for different strange quark masses at vanishing chemical potential.

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