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Roberge-Weiss transitions at imaginary isospin chemical potential

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At finite imaginary values of the chemical potential, QCD is free of the sign problem. Moreover, at high temperatures the partition function exhibits a new symmetry (the Roberge-Weiss symmetry) connecting phases with different orientations of the Polyakov loop, and the corresponding phase transitions between these.
In this contribution we investigate the perturbative one-loop effective potential for the Polyakov loop in the presence of imaginary isospin as well as baryon chemical potentials. This leads to a novel phase diagram, which reveals an interesting insight about the rich phase structure and the center symmetry breaking.
We check the perturbative results using direct lattice simulations.

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