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On analytic continuation from imaginary to real chemical potential in Lattice QCD

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Imaginary baryon number chemical potential simulations are a popular workaround for the (in)famous sign problem plaguing finite density QCD studies on the lattice. One is necessarily left with the problem of analytically continuing results to real values of μ_B . In the framework of the Bielefeld Parma Collaboration, we have in recent years studied a multi-point Padé description of the net baryon number density computed as a function of imaginary baryon number chemical potential. While our main emphasis has till now been on the determination of Lee-Yang singularities, the method is per se a natural tool to analytically continue results. We report on the status of our projects with this respect, comparing the Padé approach to analytic continuation to other possible strategies.

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