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Combining ordinary and topological finite volume effects for fixed topology simulations

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In lattice simulations at fine lattice spacings typical algorithms tend to freeze topologically. In such cases specific topological finite size effects have to be taken into account, to obtain physical results corresponding to infinite volume or unfixed topology. Moreover, in QCD simulations, where the volume is not that large, it is often also necessary to get rid of ordinary finite volume effects not related to topology freezing. To extract physical results from simulations affected by both types of finite volume effects, we extend a known relation from the literature between hadron masses at fixed and at unfixed topology by incorporating additionally also ordinary finite volume effects. Numerical results for SU(2) Yang-Mills theory are presented.

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