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Non-perturbative renormalization of the axial current in $N_f=3$ lattice QCD

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We report on a non-perturbative computation of the renormalization factor Z_A of the axial vector current in three-flavour $O(a)$ improved lattice QCD with Wilson quarks and tree-level Symanzik improved gauge action. Our normalization condition is formulated at constant physics in the same Schrödinger functional setup as is being used for the determination of the improvement coefficient c_A . It exploits the full, massive axial Ward identity to reduce finite quark mass effects in the evaluation of Z_A and correlators with boundary wave functions to suppress excited state contributions in the pseudoscalar channel.

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