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Non-Perturbative Renormalization of Nucleon Charges with Automated Perturbative Subtraction

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We report on the determination of the renormalization factors of quark bilinears which are required among others in order to determine the nucleon scalar and tensor charges from the CLS $N_f = 2$ configurations. Working in the RI'-MOM scheme, we eliminate all lattice artifacts at one-loop order using a combination of analytical results near the continuum limit and numerical calculations in automated lattice perturbation theory. The latter will allow for a ready generalization to the renormalization factors required for the average momentum fraction and other operators beyond local bilinears.

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