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Beyond the Standard Model Matrix Elements with the gradient flow

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With the gradient flow, we propose to calculate the QCD component of key beyond the Standard Model (BSM) matrix elements related to quark and strong theta-CP violations and the strange scalar content within the nucleon.

The former set of matrix elements impacts our understanding of Electric Dipole Moments (EDMs) of nucleons and nuclei (a key signature of BSM physics), while the latter contributes to elastic recoil of Dark Matter particles of nucleons and nuclei. If successful, these results will lay the foundation for extraction of BSM observables from future low-energy, high-intensity and high-accuracy experimental measurements.

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