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Renormalization constants of the lattice energy momentum tensor using the gradient flow

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We implement two different strategies for the non perturbative determination of the renormalized energy momentum tensor in $SU(3)$ Yang-Mills on the lattice.

Both strategies employ observables built with gauge fields that evolve according to the Yang Mills gradient flow.

In the first case, we use observables computed along the flow in order to define suitable lattice Ward Identities from which the renormalization constants of the energy momentum tensor can be measured.

In the second one, we show how to compute the renormalized energy momentum tensor using the small flow time expansion of properly chosen flowed observables.

We show and discuss the numerical results coming from the application of the first method, as well as some preliminary data from the second one.

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