Contribution ID: **15** Type: **not specified**

# The Chromomagnetic Dipole Operator in the Gradient Flow

*Monday, 20 March 2023 14:40 (30 minutes)*

The baryon asymmetry of the universe requires sources of CP-violation beyond those predicted by the SM. At the same time, experimental constraints on the neutron electric dipole moment leave a large window for CP-violating contributions beyond the SM. Such contributions can be described by CP-violating effective interactions at hadronic energies in QCD. Because of confinement, these contributions cannot be computed perturbatively. However, they are accessible to lattice simulations. These, on the other hand, suffer from power divergences, leading to a mixing of operators with different mass dimension. This problem can be circumvented by using the gradient flow. The mixing matrix translating between regular and flowed effective operators in the small flow-time limit is accessible to perturbative calculations. In our work, we study the mixing of the flowed chromomagnetic operator with operators up to mass dimension five and compute their renormalized mixing matrix through next-to-next-to-leading order.

**Presenter:** BORGULAT, Janosch (RWTH Aachen)