



Contribution ID: 325

Type: **Talk**

The large N limit of the topological susceptibility of Yang-Mills gauge theory

Friday, July 29, 2016 2:20 PM (20 minutes)

We present a precise computation of the topological susceptibility χ of $SU(N)$ Yang-Mills theory in the large- N limit. The computation is done on the lattice, using high-statistics Monte Carlo simulations of the $SU(N)$ Yang-Mills theories, with $N = 3, 4, 5, 6$ and three different lattice spacings. Two major improvements allowed us to go to finer lattice spacing and larger N compared to previous works. First, the topological charge is implemented through the gradient flow definition; and second, open boundary conditions in the time direction are employed in order to avoid the freezing of the topological charge. Our results allow us to extrapolate the dimensionless quantity $t_0^2 \chi$ to the continuum and large- N limits with confidence. The accuracy of our final result represents a new quality in the verification of large- N scaling.

Authors: GIUSTI, Leonardo (Università di Milano Bicocca, Milano, Italy); CÈ, Marco (Scuola Normale Superiore, Pisa, Italy & INFN, Sezione di Pisa, Italy); GARCIA VERA, Miguel Francisco (NIC, DESY & Humboldt Universität zu Berlin); SCHAEFER, Stefan (NIC, DESY)

Presenter: GARCIA VERA, Miguel Francisco (NIC, DESY & Humboldt Universität zu Berlin)

Session Classification: Vacuum Structure and Confinement

Track Classification: Vacuum Structure and Confinement