The 38th International Symposium on Lattice Field Theory

LATTICE 21

JULY 26-30 2021, ZOOM/GATHER@MIT

Contribution ID: **26** Type: **Oral presentation**

Investigating the conformal behaviour of $\mathrm{SU}(2)$ with one adjoint Dirac flavor

Friday, 30 July 2021 06:45 (15 minutes)

Motivated by recent scenarios of exotic infrared behaviour and by earlier lattice findings, we present results for the $\mathrm{SU}(2)$ gauge theory with one Dirac flavor in the adjoint representation. This provides a major update on our previous investigation of this theory, including data for four values of the gauge coupling β, and for smaller masses and larger volumes than previously considered. Results for the particle spectrum, topological observables, and the anomalous dimension from both hyperscaling and the Dirac mode number are presented. At the finest coupling, we observe a large mass anomalous dimension of $\gamma_* \boxtimes 0.6$. Our findings are analysed in relation to possible infrared behaviours of the model. In particular, we show that our results are not compatible with a confining scenario in which chiral symmetry is broken.

Primary authors: ATHENODOROU, Andreas; BENNETT, Ed (Swansea University); BERGNER, Georg; LUCINI, Biagio (Swansea University)

Presenter: BENNETT, Ed (Swansea University)

Session Classification: Particle physics beyond the Standard Model

Track Classification: Particle physics beyond the Standard Model