



Contribution ID: 409

Type: **Oral Presentation**

## Hadronic vacuum polarization from step scaling

*Friday, August 12, 2022 2:30 PM (20 minutes)*

It is well known that the electromagnetic coupling constant  $\alpha$  is an energy scale dependent quantity. Some of these dependencies originate from hadrons and can therefore be computed using Lattice QCD. The value at the mass of the Z boson is of particular interest. The large energy range makes a direct simulation unfeasible, so it has to be split up into several ranges. Setting the scale of the smaller and finer lattices, which cover the higher energies, is a challenging task. We present a general method to handle this issue in lattice gauge theories. A test of this strategy in two-dimensional QED is done and the hadronic vacuum polarization is computed on an energy range that spans two orders of magnitude.

**Primary author:** FRECH, Fabian Justus

**Presenter:** FRECH, Fabian Justus

**Session Classification:** QCD in searches for physics beyond the Standard Model

**Track Classification:** QCD in searches for physics beyond the Standard Model