

XVth Quark Confinement and the Hadron Spectrum



Contribution ID: 335

Type: **Oral**

First observation of the $\eta \rightarrow 4\mu$ decay with the CMS detector

Wednesday 21 August 2024 17:30 (20 minutes)

We present the first observation of the rare $\eta \rightarrow \mu^+ \mu^- \mu^+ \mu^-$ double-Dalitz decay. The analysis is based on data collected by the CMS experiment at the CERN LHC operating at the centre-of-mass energy of $\sqrt{s}=13$ TeV. The data sample was collected with high-rate muon triggers for an integrated luminosity of 101 fb⁻¹. The branching fraction of the $\eta \rightarrow 4\mu$ decay is measured relative to the $\eta \rightarrow 2\mu$ decay yielding a value of $B(\eta \rightarrow \mu^+ \mu^- \mu^+ \mu^-) = [5.0 \pm 0.8(\text{stat}) \pm 0.7(\text{syst}) \pm 0.7(B_{2\mu})] \times 10^{-9}$, in agreement with the Standard Model theoretical predictions.

Authors: ROSSIN, Roberto (Universita e INFN, Padova (IT)); Prof. ROSSIN, Roberto (University of Padova and INFN)

Presenter: Prof. ROSSIN, Roberto (University of Padova and INFN)

Session Classification: Heavy Quarks

Track Classification: C: Heavy Quarks