FONDAZIONE BRUNO KESSLER

ECT*
EUROPEAN CENTRE
FOR THEORETICAL STUDIES
IN NUCLEAR PHYSICS AND RELATED AREAS

SEMINAR

Friday, November 6th, 2026, at 10.00

ECT*, Aula Leonardi, Strada delle Tabarelle 286, Villazzano

The Muon g−2 Puzzle: A Crack in the Standard Model or Its Most Stringent Confirmation?

Zoltan Fodor

Penn State University

In the last 20 years, there have been ever-increasing disagreements between direct measurements of the magnetic moment of the muon and its theoretical prediction. Such a large discrepancy was considered to be the strongest signal for an interaction or particle notpresent in our physical picture. I report on our lattice QCD calculation, and about the 60 years of struggle to calculate the magnetic moment's least precise contribution. The newly reached agreement between the measured value of the magnetic moment of the muon and its theoretical predictions is probably the best proof of the validity of quantum field theory—with three very different calculational frameworks for QED, EW, and QCD—up to 11 digits.

Director of ECT*: Prof. Ubirajara van Kolck

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