

ΙΝΥΙΤΑΤΙΟΝ

as part of the Particle Physics Seminar

to the talk by

Duarte FONTES

on

"Precision in bound muon physics with EFT techniques"

Abstract:

Muon conversion — the process of a bound muon decaying into an energetic electron — provides one of the most stringent limits on Charged Lepton Flavor Violation. The experimental limit is soon expected to improve by four orders of magnitude, thus calling for precise theoretical predictions. The latter are usually described with perturbation theory using an Effective Field Theory (EFT) valid at the nuclear mass. However, muon conversion involves a multiplicity of scales below the nuclear mass, which spoil the convergence of perturbation theory.

In this talk, I present a framework to overcome this problem, by resorting to a series EFTs. Combining Heavy Quark Effective Theory (HQET), Non-Relativistic QED (NRQED), potential NRQED, Soft-Collinear Effective Theory I and II and boosted HQET, I derive a factorization theorem and present the renormalization group equations.

Time: Friday, 20 June 2025, 2:00 p.m.

Location: Erwin-Schrödinger Lecture Hall, 1090 Vienna, Boltzmanngasse 5, 5th floor

Join Zoom Meeting - Meeting ID: 933 4269 3866 Passcode: 185096 https://univienna.zoom.us/j/93342693866?pwd=aUpTR0VJNUhJY2Q0ajdaKzI1YWVBQT09