LABORATORY FOR ELEMENTARY-PARTICLE PHYSICS (LEPP)

Theory Seminar

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Probing New Forces at Flavor Factories

New forces mediated by light weakly coupled particles are ubiquitous in new physics scenarios. If the light particles couple preferentially to muons, their phenomenology becomes more elusive to standard detection techniques opening up viable parameter space to resolve the $(g-2)_\mu$ anomaly, to accommodate sub-GeV dark Matter freeze-out or to reduce the tension between cosmological and local measurement of the Hubble expansion. I will show that this interesting parameter space can be partially probed by looking at kaon decays at NA62. I will discuss two different search strategies designed to hunt the invisible/di-muon decay of a light muon-philic resonance and assess their future reach at NA62. I will compare the merit of this near term proposal with existing searches and with other long term proposals to hunt for muonic forces at dedicated future facilities. Finally I will comment on unexplored possibilities to hunt for muonic forces at B meson factories.

Wednesday, Feb. 27, 2019

2pm

401 Physical Sciences Building