

PHYSICS AND ASTRONOMY SEMINAR

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"Composite Mediators and Dark Matter"

Abstract

We present a model of dark matter where the mediator that connects the dark sector to the Standard Model is tied to electroweak symmetry breaking through the composite Higgs scenario. A nonminimal coset space furnishes pseudo-Nambu–Goldstone bosons that include both the Higgs and an additional gauge-singlet pseudo-scalar mediator. In contrast with typical extensions of Higgs portal models, this framework is particularly robust given that symmetries and selection rules prescribe the low-energy couplings of a naturally light scalar mediator. While the construction is general, we focus on the simplest non-minimal composite Higgs coset, SO(6)/SO(5). We highlight the interesting features of this model, such as resonant annihilation for a fairly natural portion of the parameter space.

> Friday, September 2, 2016 11:00 a.m. Clearihue Building Room C111