Probing Dark Matter Physics via Exotic Decays of the 125 GeV Higgs Boson

Tao Liu*

[1]Department of Physics, HKUST

***Email of Presenting Author: taoliu@ust.hk**

The 125 GeV Higgs boson might be the leading window into physics beyond the Standard Model, including dark matter physics. One of the most important ways to explore this regard is via Its exotic decays. In this talk we will present an overview on this topic, mainly based on [1], where a systematic study on exotic decays of the 125GeV Higgs boson (theoretical motivations, search strategies at the LHC, etc.) is pursued, and [2,3], where special attentions are given to their role in probing supersymmetric light dark matter scenarios which are suggested in [4].

References:

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[2] J. Huang, T. Liu, L.-T. Wang and F. Yu, ``Supersymmetric Exotic Decays of the 125 GeV Higgs Boson'', arXiv:1309.6633 [hep-ph], accepted for publication in Phys. Rev. Lett.

[3] J. Huang, T. Liu, L.-T. Wang and F. Yu, to appear.

[4] P. Draper, T. Liu, C. E.M. Wagner, L.-T. Wang and H. Zhang, ``Dark Light Higgs Boson'', Phys. Rev. Lett. 106 (2011) 121805.