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Potential for discovery of a new dark matter WIMP at the present Large Hadron Collider SPENCER ELLIS , SABRINA HERNANDEZ , BAILEY TALLMAN , DRUE LUBANSKI , DIEGO CRISTANCHO GUERRERO , BRANDON TORRES , CADEN LAFONTAINE , TREVOR CROTEAU , ROLAND ALLEN , Texas A&M University — In this talk and another one at this conference [1], we discuss the potential for discovery at a hadron or lepton collider of a new dark matter WIMP which we have proposed, called the higgson [2] because it results from an extended Higgs sector. CMS and ATLAS have independently placed upper limits on the branching ratio for invisible Higgs decays to particles with a total mass of < 125 GeV. The present particle has a small Higgs coupling, however, and the total mass of a pair should be ~ 150 GeV, so it is consistent with experiment. There is still the possibility that the Higgs coupling is strong enough for creation through this mechanism at the present LHC. If not, the remaining predicted signature for collider detection is then ~ 150 GeV of missing transverse energy resulting from vector boson fusion, which may be observable at future colliders [1]. [1] Sabrina Hernandez et al., Potential for discovery of a new dark matter WIMP at the High-Luminosity Large Hadron Collider or the Compact Linear Collider, talk at this conference. [2] Reagan Thornberry, Gabriel Frohaug, Caden LaFontaine, Bailey Tallman, Alex Behne, Steven Sellers, Matthew Sadler, and Roland E. Allen, European Physical Journal Special Topics (in press).

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