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**Signatures of Hidden Valley Higgs decays** DANIEL VENTURA, LAURA BODINE, University of Washington, ROME1-SEATTLE ATLAS GROUP TEAM — In this talk we present results from a preliminary study of a potential Higgs discovery channel involving Hidden Valley particles decaying in the ATLAS detector at the Large Hadron Collider. In the Hidden Valley Model* proposed by M. Strassler and K. Zurek, the Higgs can decay to neutral, light, long-lived particles that subsequently decay to Standard Model particles. We present results of an ongoing study of the ability to detect this Higgs decay channel with the ATLAS detector. We will discuss triggering issues arising from highly displaced vertices and jets with few associated tracks. * M Strassler and K. Zurek hep-ph/0605193

Daniel Ventura
University of Washington

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