CUPhysics

Physics Theory Seminar

Monday, March 19, 2018 / Pupin Hall Theory Center, 8th Floor / 2:10 PM

"Dispatches from the sub-GeV Dark Matter Frontier"

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The sub-GeV dark matter mass range has received increased interest in the last several years, owing to the lack of any unambiguous signal of the canonical WIMP in the GeV-TeV mass range. The sub-GeV mass range is relatively unexplored due to the difficulty of detecting such light dark matter with traditional techniques. However, there have been recent experimental developments that finally make sub-GeV direct detection viable. I will discuss some of the theoretical principles and strategies to explore sub-GeV dark matter candidates, as well as some current and proposed experimental techniques. I will focus predominantly on semiconductor targets, such as the new SENSEI experiment which utilizes silicon CCDs, and demonstrate the potential for exploring the eV-GeV dark matter mass range in the near future.