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## **New Perspectives on Indirect Detection: Dark Matter in the Sun and Other Stars**

*Friday, 12 August 2011 09:00 (20 minutes)*

Any program to identify dark matter relies on direct detection of dark matter scattering in low-background experiments, collider signatures, and indirect astrophysical signatures of dark matter. I will review contemporary constraints from indirect searches for dark matter. I will then present several new perspectives on the indirect detection of dark matter. First I will focus on the Sun and show how searches for high-energy neutrinos from the Sun in conjunction with searches by direct detection experiments can constrain the physics of the dark matter. I will then discuss the effects that dark matter may have on stars, particularly low-mass stars, and how these effects may give rise to unique, observable signatures. In particular, low-mass stellar populations may have different properties at different positions within the Milky Way galaxy and in nearby, external galaxies. The shift in stellar properties from one environment to the next should be correlated with the abundance of dark matter inferred for each galaxy. With a number of ongoing and forthcoming large astronomical surveys capable of studying stellar populations in detail, such signatures of dark matter may offer new methods to probe dark matter physics in parameter regimes that are inaccessible to other indirect techniques.

**Primary author:** Prof. ZENTNER, Andrew (University of Pittsburgh)

**Presenter:** Prof. ZENTNER, Andrew (University of Pittsburgh)

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