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Bayesian Reconstruction of the WIMP Velocity Distribution Function from Direct Dark Matter Detection Data

Friday 27 June 2014 17:30 (20 minutes)

In this talk, I present our recent work on the introduction of Bayesian analysis to our model-independent reconstruction of the one-dimensional velocity distribution function of Galactic WIMPs. In this process, the (rough) velocity distribution reconstructed by using raw data from direct Dark Matter detection experiments directly has been used as "reconstructed-input" information. By assuming a fitting (theoretical) velocity distribution function and scanning the parameter space based on the Bayesian analysis, the astronomical characteristic parameters, e.g. the Solar and Earth's Galactic velocities, will be pinned down as the output results. I will first describe the use of this recently developed technique for our newest announced work and then discuss numerical results of our Monte-Carlo simulations.

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