

DNP06-2006-000363

Abstract for an Invited Paper
for the DNP06 Meeting of
the American Physical Society

Direct Detection of WIMP Dark Matter

RICHARD SCHNEE, Case Western Reserve University

Astrophysical observations indicate that about 80% of the mass of the universe is in the form of non-baryonic particles beyond the standard model of particle physics. One exciting and well motivated candidate is weakly interacting massive particles (WIMPs) left over from the Big Bang. Direct detection of these particles requires sophisticated detectors to defeat much higher-rate backgrounds due to radioactivity and other sources. Promising techniques identify individual interactions in shielded fiducial volumes and distinguish nuclear-recoil signal candidates from electron-recoil backgrounds, based on the timing, energy density, and/or the division of the energy into signals of ionization, scintillation, or phonons. I will review the techniques of the dozens of experiments searching for WIMPs and summarize the most interesting results of experiments not being discussed in greater detail at this symposium.