

Theory Seminar

Thursday, 16/10/2014

11h00 – Auditorium

Christopher Savage

(University of Utah, USA)

Direct detection of dark matter : status and issues

Various astronomical observations indicate that the majority of matter in the universe is "dark matter" : a form of matter unlike the ordinary matter found in stars, gases, and dust in that it effectively interacts only through gravity and leaves behind no visible signatures. If this dark matter is composed of weakly interacting particles, we can hope to directly detect their presence by observing their rare interactions with ordinary matter inside specially constructed detectors. The current results of these direct detection searches are seemingly at odds : the CoGeNT, CDMS (Si), CRESST, and DAMA experiments observe interactions in their detectors consistent with those expected from dark matter, while other experiments, such as CDMS (Ge), XENON, and LUX, find no signals above backgrounds. I will review these current results and discuss various instrumentation, particle physics, and astrophysical issues that can affect the interpretation (and thus compatibility) of the experimental results.