



Contribution ID: 103

Type: **Presentation**

Limits on Light WIMPs: LUX, lite and beyond

Wednesday, June 25, 2014 2:55 PM (20 minutes)

This talk will present a reexamination of the current direct dark matter data including the recent CDMSlite, LUX, and SuperCDMS data, assuming that the dark matter consists of light WIMPs, with mass close to $10 \text{ GeV}/c^2$ with spin-independent and isospin-conserving or isospin-violating interactions. We have compared the data with a standard model for the dark halo of our galaxy and also in a halo-independent manner. In our standard-halo analysis, we found that for isospin-conserving couplings, CDMSlite and LUX together exclude the DAMA, CoGeNT, CDMS-II-Si, and CRESST-II possible WIMP signal regions. For isospin-violating couplings, we found that the SuperCDMS data allow for only a tiny portion of the CDMS-II-Si region. In our halo-independent analysis, we found that for isospin-conserving couplings, the situation is of strong tension between the positive and negative results, as it was before the LUX, CDMSlite, and SuperCDMS bounds. For isospin-violating couplings, we found that LUX and CDMS-II-Si bounds together exclude or severely constrain the DAMA, CoGeNT and CRESST-II possible WIMP signals.

Primary author: GONDOLO, Paolo (University of Utah)

Co-authors: DEL NOBILE, Eugenio (Centre for Particle Physics Phenomenology CP3-Origins); GELMINI, Graciela (UCLA); HUH, Ji-Haeng (S.N.U in Seoul,Korea)

Presenter: GONDOLO, Paolo (University of Utah)

Session Classification: Dark Matter: Direct Detection

Track Classification: Dark Matter Direct Detection