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Mr. ALBORNOZ, Daniel (LAPTH Annecy): Lightest neutralinos in the (N)MSSM

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Recently direct detection experiments claim Dark Matter like events. If they were caused by WIMPs indeed, then they point towards rather light (a few to 50 GeV, depending on experiments) Dark Matter particles. We review the plausibility of light neutralinos with relatively large elastic scattering cross sections in the Minimal and Next-to-Minimal Supersymmetric Standard Models (MSSM & NMSSM). Applying cosmological, new particle searches, B-physics and electroweak precision constraints, we explore the parameter spaces using a Monte Carlo Markov Chain. We then check whether there are any points providing neutralinos with the suited cross section and mass for direct detection experiments. We take into account the no-signal claim of Xenon100 and TeVatron constraints to the Higgs sector to further analyse those points. While MSSM fails to provide an interesting candidate, the NMSSM can overcome all constraints and produce neutralinos in the region of interest.

Session Classification: 6 talks (Chair: Bohdan GRZADKOWSKI)