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Systematic Statistical Surveys of the NAHE (Variation) Landscape

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Abstract content

Presented are the results of the initial stages of systematic investigations of NAHE (Nanopoulos, Antoniadis, Hagelin, Ellis)-based models (see arXiv:1111.1263 [hep-ph]) and of NAHE variation-based models (see arXiv:1111.1917 [hep-ph]). For both model classes, the statistics related to the number of U(1)'s, gauge group factors, non-Abelian singlets, and ST SUSYs, as well as the gauge groups, are discussed. Prior results of other large-scale investigations are compared to these. Some past conjectures about disallowed combinations of observable and hidden sector groups are disproven by counter-example. Statistical correlations between gauge groups and number of ST SUSYs is also examined. Last, the NAHE variation class is shown to be more conducive than the NAHE class to the production of "mirrored" models, in which the observable and hidden sector particles are identical and a NAHE-variation model with completely mirrored gauge groups is presented.

Primary author(s) : Mr. DENG, Yanbin (Baylor University)

Co-author(s) : Dr. RENNER, Tim (Baylor University); MOORE, Douglas (Baylor University); GREENWALD, Jared (Baylor University); Dr. CLEAVER, Gerald (Baylor University)

Presenter(s) : Mr. DENG, Yanbin (Baylor University)

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