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High Energy Physics - Theory

Nonstandard Parafermions and String Compactification

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(Submitted on 4 Jul 2011 (v1), last revised 20 Sep 2011 (this version, v3))

Nonstandard parafermions are built and their central charges and dimensions are calculated. We then construct new N=2 superconformal field theories by tensoring the parafermions with a free boson. We study the spectrum and modular transformations of these theories. Superstring and heterotic strings in four dimensions are then obtained by tensoring the new superconformal field theories along with some minimal models. The generations and antigenerations are studied. We give an example of the $1^2(5,7)$ theory which is shown to have three net generations.

Comments:	29 pages; typos corrected and some remarks added
Subjects:	**High Energy Physics - Theory (hep-th)**; High Energy Physics - Phenomenology (hep-ph); Mathematical Physics (math-ph)
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