Review of: "Explaining the W-boson Mass in the Context of the Supersymmetric 331 Model"

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Potential competing interests: No potential competing interests to declare.

The article presents a Minimal Supersymmetric 331 Model to explain the recent CDF*W*-boson mass excess. The article lacks clarity and detail, and needs more justification and discussion for the chosen model. Following are some suggestions and questions for the author to improve the article.

- In the introduction, the author mentions the lack of explanation for the number of families in SM and that this is resolved in 331 model. Then MSUSY331 model is invoked without further clarification. Perhaps it would be good to give a clear motivation for choosing the model, and provide some details on why the models are successful in solving the problem.
- The author mentions TeV scale implications of 331 model with citations. It may be worth stating some of these implications explicitly, especially if it is relevant to the analysis of CDF *W* mass excess.
- I would suggest adding a section on model description, including the scalar particle content and superpotential at the very least, along with the relevant terms that contribute to the *W*-boson mass shift.
- The introduction of the vev symbols seem abrupt. The author should state explicitly which scalar fields acquire vevs and their relation to the masses. Perhaps provide the symmetry breaking pattern?
- The abstract mentions gauge boson masses and their phenomenological implications but these are not discussed in the article. The author should elaborate on these implications, and how they can be tested at current or future colliders.
- Since the focus of the paper is on explaining the*W* mass shift, a more detailed discussion on this matter is warranted, especially regarding Eq (8) which is the main result. Are there any experimentally verifiable results from this analysis?