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Dear Prof. Wen:

This is my second report for Palmerduca and Qin: "Four no-go theorems on the existence of spin and orbital angular momentum of massless bosons".

The authors have fully resolved the majority of the issues that I raised in my first report. I have some remaining doubts regarding the split of angular momentum for massive particles, which I write below.

Finally, I would like to thank the authors for their careful consideration of my criticism, and for the very interesting scientific exchange.

Best regards,
Ivan Fernandez-Corbaton

Here are some comments that I think deserve consideration. The equation numbering refers to the response letter:

1) Are the eigenvalues of the **S** operators in Eq. (7) integers, discrete real values, or continuous real values? I think that the corresponding section in the article would benefit from explicitly answering this question.

2) When the single particle state is a superposition of different momenta, each such momenta will require a different boost to bring it to $(M,0,0,0)$ before applying the rotation. This plurality of rest frames complicates the physical understanding of the proposed transformation for massive particles. I think that this is important enough to merit its comment in the article.

3) I do not think that the transformation in Eq. (5) is generated by the operators in Eq. (7). If one takes one of the three components in Eq. (7), say S_j , and uses the usual recipe to go from the generators to the generated transformations

$$\exp(-\mathrm{i}\theta S_j) = \sum_{l=0}^{\infty} \frac{(-\mathrm{i}\theta S_j)^l}{l!} = \sum_{l=0}^{\infty} \frac{(-\mathrm{i}\theta \Sigma(\Lambda_{-k}) S_{sj} \Sigma(\Lambda_k))^l}{l!}, \tag{1}$$

the result seems to be different than the transformation in Eq. (5):

$$\Sigma(\Lambda_{-k}) \exp(-\mathrm{i}\theta S_{sj}) \Sigma(\Lambda_{-k}). \tag{2}$$