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Title: Is the 130 GeV Line Real? A Search for Systematics in the Fermi-LAT D

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REPORT JCAP

Referee report

This manuscript is a timely and much-needed analysis of possible instrumental effects that could have produced the 130 GeV line in the gamma-ray data from the Fermi telescope from the direction of the galactic center. The authors consider a variety of plausible instrumental effects that they can test with the publicly-available information provided by the Fermi Collaboration, and address and test them rather thoroughly. I find all of the scenarios they test motivated and the analysis presented sensible and complete. I have only three minor suggestions, that I invite the authors to consider in their revised submission:

1. I would like the authors to be more quantitative in their statements about the fact the the test statistics they show in fig 9 do not show "strong sign for a variability" (what is strong? how could you quantify this?).

2. In 2.3 the authors state that the GC has a large gamma-to-CR ratio: what is this ratio for that region? how does it compare to the mis-ID rate of CR? in principle a nearby CR source that produces monochromatic 130 GeV CR's could be a possibility, if it is nearby enough that CR would originate preferentially from one direction, and if the injection is recent enough

3. I would suggest to rephrase the first sentence of the abstract - the language can be improved, e.g. "avalanche of papers" or "exotic pulsar wind"

I will gladly recommend this manuscript for submission after the few points above are addressed.