

# Review of: "Dynamics of Three-Level Laser Pumped by Electron Bombardment"

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**Potential competing interests:** No potential competing interests to declare.

The authors present an expansive analysis of the statistical properties of a three-level laser pumped by electron bombardment. Their analysis unfortunately fails to place the results in the larger context of the field and is lacking in its discussion of the implications of the results. The motivation for the work is not sufficient to motivate the effort and it is not clear what is relevant about such a study. What is gained by studying such a laser system in this fashion? There is a general "compute and move on" ethos behind the manuscript without a thorough explanation of the implications relative to different calculations and explanations.

Further, many of approximations or steps taken are not thoroughly justified or explained in a fashion that a reader can understand what motivates them. The justification and implications of the approximations would be well served by an elaboration. Without this, the validity and utility of the presented results is hard to ascertain.

With that, the authors successfully perform numerous quantum mechanical calculations that at surface level seem to be of interest to a larger community and such efforts to further first-principle modeling efforts should be applauded.