

**REBUTTAL FOR SAIP PAPER TITLED: “ANALYSIS AND
PERFORMANCE OF A CLOSED LOOP EXTERNAL CAVITY DIODE
LASER CONTROL SYSTEM”
by Victory Opeolu.**

REVIEWERS COMMENTS

Reviewer 1

This work have to be placed into context better with more references. I cannot asses if this work is novel with what little is provided in the introduction.

A quick search reveals there is similar work being done looking at perhaps different aspects of the problem, see link <http://www.opticsinfobase.org/abstract.cfm?URI=ao-47-28-5163>. The referenced papers do not have dates. Figure 2 has no axis labels. A simulation by itself is difficult to motivate for publication without proper context. It must be clear that the work is novel.

Reviewer 2

This paper presents a concise summary of a model for feedback control of an ECDL and is reasonably well written. It is not clear from the math how the spectrum in Eq. (7) enters into the differential equation of the control loop model. Please clarify. Please label the axes in Figure 2.

If the author incorporates those minor comments I recommend accepting.

Dear Editor(s),

Sincerest thanks for your response and reviewers comments on our submission. We sincerely apologise for the great time it has taken us to respond to these comments and hope that a revised version of the paper will still be considered by you. We have revised the paper in response to the extensive and insightful reviewer comments.

1. This work have to be placed into context better with more references. I cannot asses if this work is novel with what little is provided in the introduction. A quick search reveals there is similar work being done looking at perhaps different aspects of the problem, see link <http://www.opticsinfobase.org/abstract.cfm?URI=ao-47-28-5163>.

You raised an important point. We have updated the paper to include more relevant articles. We give more references to papers that are slightly like ours while pointing out what their emphasis is on. This is all in the 3rd paragraph of the introduction.

2. The referenced papers do not have dates.

This has been corrected in the references section

3. Figure 2 has no axis labels.

This has been corrected

4. A simulation by itself is difficult to motivate for publication without proper context. It must be clear that the work is novel.

We agree with the reviewer and this has been addressed. We also modified the paper with more recent simulation results. We did this by using more accurate reference to experimental data. We hope by doing this, it gives the numerical analysis a better context and more realistic outputs. This is discussed in the results and analysis section.

5. This paper presents a concise summary of a model for feedback control of an ECDL and is reasonably well written. It is not clear from the math how the spectrum in Eq. (7) enters into the differential equation of the control loop model. Please clarify.

This has been addressed in the description of variables after Eq. (7). Figure 4 was modified to reflect how the mathematical model of each components are interlinked. We clarified how the ω is the laser frequency.

6. Please label the axes in Figure 2.

Please see point 3 above.

ADDITIONAL NOTES

- We have replaced figure with a more recent experimental data. It's simulated equivalent and selected peak is also highlighted on the figure. This also led to a change of figure 5 as it reflects an accurate depiction of the chosen curve to lock on to.
- By updating the saturated absorption spectroscopy results, the system response was similar to the previous analysis. The results, observations and conclusions are discussed in the last two sections of the paper.
- The conclusions especially are different from the previous as it was updated to reflect the what we observed from the results.
- We also specified what y is in Eq. (2)
- The graphs in the results (Fig. 7 and 8) also reflect the disturbances added and how it affects the response of the system.