Paper Submission Form - SAIP2025 Proceedings

Sections A, C, D, and E must be completed by all authors (including students) who submit papers. Section B is compulsory for students who submit manuscript(s).

Section A: Paper Submission Information

Paper/Abstract ID	231
Paper title	Voltage-Based Wavelength Tuning of a DFB Laser using a Frequency-to-Voltage Converter for OPLL Applications
Corresponding Author Name & Surname:	Lilian Mutia
Corresponding Author Email Address:	lilian.mutia@gmail.com

Section B: For Students & Supervisors

Supervisor Name & Surname:	Dr. david Waswa
Supervisor Email Address:	David.Waswa@mandela.ac.za

For this paper, the supervisor must agree/disagree with the following statements.

	Yes	No
1. I am aware that the above-mentioned paper is being submitted for possible publication in the Proceedings of the SAIP Conference. I am satisfied that the presented work is that of the listed authors. I hereby give consent to the submission	✓	
2. I have proof-read the manuscript	✓	
3. I am satisfied that the manuscript is written in appropriate English and is sufficiently free of grammatical and spelling errors	✓	
4. I am familiar with the required manuscript format ("House Style"), and I am satisfied that this manuscript meets the criteria. I am aware that manuscripts not conforming with House Style may be desk rejected	✓	
5. I am satisfied that the scientific content of this manuscript is of sufficient standard for it to be considered for publication in the Proceedings of the South African Institute of Physics Conference Proceedings	✓	

Student Name & Surname: Lilian Mutia ..... **Signature:** ..... **Date:** 30/07/2025

Supervisor Name & Surname: Dr. David Waswa ..... **Signature:** ..... **Date:** 30/07/2025

Section C: Suggested Reviewers

Obtaining the two referee reports necessary for DHET subsidy is an onerous task.

Please provide the names and contact details of three qualified South African and/or international referees. Referees should have a PhD and expertise in the relevant area of Physics. Do not recommend referees who have co-authored a work with any of the authors on the manuscript within the past five (5) years. Manuscripts without three recommended referees may be subject to desk rejection.

Suggested Reviewers in your Research Field (Both local & international)		
	Reviewer Names & Surname	**Reviewer's Email Address(es)**
Suggested reviewer #1	Dr. Enoch Kiptoo	ekipnoo@kabianga.ac.za
Suggested reviewer #2	Dr. George Isoe	gisoe@sarao.ac.za
Suggested reviewer #3	Dr. Duncan Kiboi	dkiboiyo08@yahoo.com

Section D: Declaration of Novelty and Use of AI

How is this submitted manuscript scientifically novel?

This work presents a novel and cost-effective approach to coarse frequency locking in Optical pjhase Locked Loop (OPLL) systems by extending the operational range of a commercially available frequency-to-voltage (FVC), the LM331N. While the LM331N is typically limited to 100 kHz frequency input range, we demponstrate a practical circuit modification that extends its frequency response to beyond 2 MHz, with an acceptable trade-off in linearity. Furthermore. the converted voltage signal is successfully used to tune the emission wavelength of a DFB laser, establishing a direct voltage-based control method. This experimental validation contributes a new method for implementing scalable and low-cost OPLL systems, where frequency locking is required before precise phase locking. It also provides a viable solution for emerging photonics applications such as radio-over-Fiber (RoF) for 5G and beyond.

Please see the Author Guidelines for the AI use policy.

How was AI used in the generation of this manuscript?

AI tools were used to improve language clarity and structure. All scientific content, data, and conclusions were developed solely by the authors.

Section E: Plagiarism

	Yes
I am aware that plagiarism detection software may be used on my manuscript.	✓