

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	212
Paper title	Detecting Anomalies in Measured Thermal Neutron Flux Profiles of SAFARI-1 Research Reactor
Corresponding Author Name & Surname:	Rethabile Kgolobe
Corresponding Author Email Address:	rethabilethuto3@gmail.com

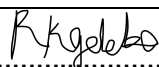
Section B: For Students & Supervisors

Supervisor Name & Surname:	Charis Harley and Simon Connell
Supervisor Email Address:	charley@uj.ac.za; shconnell@uj.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: Rethabile Kgolobe

Signature: 

Date: 31/07/2025

Supervisor Name & Surname: Charis Harley

Signature: 

Date: 21/7/2025

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	Iyabo Usman	Iyabo.Usman@wits.ac.za
Suggested reviewer #2	Peane Maleka	pmaleka@tlabs.ac.za
Suggested reviewer #3	Edith Zinhle Buthelezi	zinhle@tlabs.ac.za

Section D: Declaration of Novelty and Use of AI

How is this submitted manuscript scientifically novel?

This study is scientifically novel in several ways: firstly, it addresses the anomaly detection of thermal neutron flux profiles caused by wire misplacement. Secondly, the study introduces mathematically-based techniques for anomaly detection, such as data preprocessing, feature engineering of the neutron flux profiles, and statistical methods which have not been previously applied in this context.

Thirdly, the study uses the key features of the neutron flux profiles to detect these anomalies caused by the wire misplacement. This approach sets a foundation for data-driven methods as machine learning and artificial intelligence to detect these anomalies

Please see the [Author Guidelines for the AI use policy](#).

How was AI used in the generation of this manuscript?

AI tools such as Grammarly was used for grammer and syntax correction. Deepseek and Chatgpt were used for size reduction of some of some the pictures.

Section E: Plagiarism

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