

CURRICULUM VITAE

Personal Details

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Scopus Author ID : 54880485200
ResearcherID : N-6305-2014
Loop profile : 1335040
SciProfiles : 1266137
WoS ResearcherID : N-3348-2019
Links for Research :

- www.researchgate.net/profile/Ramoshweu_Lebelo
- <https://scholar.google.com/citations?user=6UL0cOAAAAAJ&hl=en>
- <https://za.linkedin.com/in/solly-rs-lebelo-36b74ab0>

Educational Background

TERTIARY EDUCATION

2013: D. Tech (Mechanical Engineering _Theoretical Fluid Dynamics)
Cape Peninsula University of Technology.
Thesis: Analysis of Greenhouse Gas Emission from Reactive Materials and its Thermodynamics

2008: M. Tech (Mathematical Technology _ Heat equation analysis)
Tshwane University of Technology.
Mini-Dissertation: Approximating Solutions of Partial Differential Equations with Variable Coefficients

1987: BSc. (Ed) - North-West University
Mathematics, Chemistry, Education, Guidance and Counseling,
Developmental Studies & Statistical Research

WORKSHOPS & CERTIFICATES

2015: Post Graduate Supervision: VUT- Rhodes University.
2014: Moral Intelligence: VUT – Regenesys.
2010: Assessor Training: VUT-Enje Funda Consulting.

2010: Diversity and Conflict Management: VUT-Papillon Training.
2005: Basic Course for Church Leaders: Nehemiah Bible Institute.
2004: General Competency (End-user Computing): Eskom-SkillsPro.

SECONDARY EDUCATION:

1982: Matlaisane High School-Standard 10 (Matric)

Relevant Experience

1. WORK EXPERIENCE

2025/3-date: Vaal University of Technology
HoD: Applied Physical Sciences Department
2024/8-date: Vaal University of Technology
Associate Professor (Mathematics): Applied Physical Sciences Department
2022-2024/07: Vaal University of Technology
Associate Professor (Mathematics): Education Department
2018-2022: Vaal University of Technology – Vanderbijlpark Campus
Senior Lecturer: Department of Education
Subjects teaching:

- Education & Mathematics: B. Ed (undergraduate)
- Research Methodology: PGDHE (Postgraduate Diploma in Higher Education)
- Module Planning & Materials Development: PDGHE
- Action Research: Adv. Dip TVET
- Philosophy of Education: Adv. Dip TVET

2015-2017: Vaal University of Technology – Vanderbijlpark Campus
Senior Lecturer: Mathematics
Department of Mathematics

2010-2015: Vaal University of Technology – Vanderbijlpark Campus
Lecturer in Mathematics
Department of Mathematics

2004-2009: Tshwane University of Technology, Pretoria,
Part-time Lecturer & Student

2003-2007: Eskom (Mathematics & Science Foundation) Contract
Mathematics Educator
Kgomotso Comprehensive HS, Soshanguve, Pretoria North,
Department of Education Gauteng
Mathematics & Science Educator
Victory Abet Centre (Soshanguve).

2001-2001: Midrand University – Cambridge Open Learning Project
Mathematics Lecturer, Midrand

1988-1996: Moretele College of Education
Lecturer-Primary & Secondary Levels Mathematics
Makapanstad, Hammanskraal, North of Pretoria.

2. LEADERSHIP EXPERIENCE

2004- date: Senior Pastor-Christ Fellowship Centre (NPO 062-433) –Ttemba
1999-2004: Branch Pastor-Elim Tabernacle – Soshanguve South.
1994-1998: Youth Pastor-Elim Tabernacle – Soshanguve North.
1997-2000: Managing Director-ADSO Med-Inv Mega Services CC (Medical Aid Brokers)

3. COMPUTER PROFICIENCY

Microsoft Office, Maple, Mathcad, Derive (Taxes Instrument), little of Matlab & Scientific Workplace.

4. COMMUNITY INVOLVEMENT

2018 March: Board Member: Katleho Development Centre of Excellence
NPO 145-905
2017 May: University of Johannesburg: Panel member for Mathematics Curriculum Review
2011-2014: Vaal University of Technology Maths & Science Upgrading.
2014: Protec – Prepared Maths teaching manuals for grades 10-12, Trigonometry.
2004 to date: Senior Pastor: Christ Fellowship Centre - NPO 062-433
2001-2005: Bathopele Community Development Trust – NPO 017-410.
Accreditation Number by HWSETA: TPA 04/09/208
Won 1st Prize –North-West Premier's Award (2003): Outstanding Community Development Organization
Positions: Capacity Building & Training
Tasks : (i) Basic Business Skills Training
(ii) Subject Teaching Coordination – Saturday School – Maths & Science
1994-2000: Secretary: Street Committee member-Soshanguve Block GG
1986-1987: Secretary: Student Christian Movement-UNIBO
1983-1984: Clerk & Tribal Court Secretary-Amandebele-Ba-Lebalo Tribal Authority-Majaneng Village (Hammanskraal).
1982-1984: Youth Leader-Africa Evangelical Church-Ttemba (Hammanskraal)

5. PROJECTS SPONSORED FROM OWN RESEARCH FUNDING

- 5.1. An Exploratory and Reflective Seminar – 26/09/2024
- 5.2. Consultative Research Workshop – 28/11/2024
- 5.3. Faculty Research Writing Retreat and Awards – 05/12/2024
- 5.4. Consultative Research Workshop – 23/05/2025

6. EXTRA-MURAL ACTIVITIES

6.1. ENGAGEMENT AT THE DEPARTMENTAL LEVEL

6.1.1. Curriculum/Module development:

- Education 1 – 4 (B. Ed (SP & FET) Teaching), at VUT.
- Mathematics 1 – 3 (B. Ed (SP & FET) Teaching), at VUT.
- Action Research (Advanced Diploma in Technical Education)
- B Ed (Hons) programme development (still undergoing)
- M Ed in Higher Education

6.1.2. Member of the following committees:

- a) Administration
- b) Curriculum development
- c) Research

6.1.3. Examiner (Departmental):

- Mathematics (B. Ed (SP & FET) Teaching).
- Education (B. Ed (SP & FET) Teaching).
- Philosophy of Education (Adv Dip TVET)
- Psychology of Education (Adv Dip TVET)

6.1.4. Moderator (Departmental):

- Natural Science (New B. Ed (SP) Teaching).
- Physical Science (New B. Ed (SP & FET) Teaching).

6.1.5. Line Manager for Visiting Lecturer (01 April to 30 September 2017)

6.1.6. Academic Coordinator for Funza Lushaka Bursary Scheme offered to Teacher Trainee Students by the Department of Basic Education in South Africa. (2018 to date)

6.1.7. Coordinator for Teaching Practice (2018 to 20024/07)

6.2. ENGAGEMENT AT THE FACULTY LEVEL

- 6.2.1. Faculty Research Innovation Committee (FRIC) member
 - Human Sciences (2018 – 2020)
 - Applied & Computer Sciences (2014 – 2017)
- 6.2.1. Faculty Research Ethics Committee (FREC) member (2020 – 2022)
- 6.2.2. Faculty Conference Committee Member
 - Applied & Computer Sciences (Convener: 2025)
 - Human Sciences (Technical Team: 2018)
 - Applied & Computer Sciences (Technical Team: 2013)

6.3. INTERNATIONAL ENGAGEMENT

- 6.3.1. Adjunct Professor: Chandigarh Group of Colleges, Jhanjeri, India (from 2025)
- 6.3.2. International Visiting Faculty: Chandigarh University, Mohali, Punjab, India (from 2025)
- 6.3.3. Collaborative MOU Initiation: Vaal University of Technology (SA) and Redeemer's University (Nigeria) – (2025 – 2030)

6.4. EXTERNAL DISSERTATION/THESIS EXAMINATION COMPLETED

| Year | Masters |
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| 2018 | <p>Topic: Estimating the parameters of a predator-prey dynamic model with incomplete data</p> <p>Student: Christopher Muzvondiwa</p> <p>Degree: MTech (Applied Mathematics)</p> <p>Institution: Tshwane University of Technology</p> |
| 2018 | <p>Topic: Computational Analysis of Viscoelastic Fluid Dynamics with Applications to Heat Exchangers</p> <p>Student: Anele Mavi</p> <p>Degree: MSc (Applied Mathematics)</p> <p>Institution: University of Cape Town</p> |
| 2019 | <p>Topic: Grade 10 Learners' Understanding of key Mathematics Concepts in Selected Secondary Schools in Chibombo district of Zambia</p> <p>Student: Ceaser Choonya</p> <p>Degree: MEd (Mathematics Education)</p> <p>Institution: University of South Africa</p> |
| 2020 | <p>Topic: The availability and utilization of resources in education as perceived by teachers in secondary schools in Akure South area, Nigeria.</p> <p>Student: Oluwa-Damilola Arike Augustine Omotosho</p> <p>Degree: MEd in Adult Education</p> <p>Institution: University of South Africa</p> |
| 2020 | <p>Topic: Error bounds for numerical integration for functions of lower smoothness and gauss-legendre rules</p> <p>Student: Abiola Olawuyi Oladeji</p> <p>Degree: MTech (Applied Mathematics)</p> <p>Institution: Tshwane University of Technology</p> |
| 2020 | <p>Topic: Exploring teachers' mathematical meanings for teaching trigonometric ratios and functions to grade 10 learners in the Tshwane South District of Gauteng Province</p> <p>Student: Gabriel Tshepo Mphuthi</p> <p>Degree: MSc (Mathematics, Science and Technology Education)</p> <p>Institution: University of South Africa</p> |
| 2021 | <p>Topic: An exploration of grade 12 leaners' misconceptions related to differential calculus at a school in Capricorn South District, Limpopo Province, South Africa</p> <p>Student: Jameson Goredema</p> <p>Degree: MEd (Mathematics Education)</p> <p>Institution: University of South Africa</p> |
| 2021 | <p>Topic: Exploring grade 6 mathematics teachers' experiences in teaching addition and subtraction of common fractions: A case of Alfred-Ndzo east district</p> <p>Student: Zoleka Gula</p> <p>Degree: MEd (Mathematics Education)</p> <p>Institution: University of South Africa</p> |

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| 2021 | Topic: Analysis of Peristaltic Nanofluid Flow in a Microchannel. Student: Ronny Maushi Mokgwadi Degree: MSc (Applied Mathematics) Institution: University of Limpopo |
| 2022 | Topic: Evaluating grade 10 learners' change in understanding of similar triangles following a classroom intervention Student: Amokelo Given Maweya Degree: MEd (Mathematics Education) Institution: University of South Africa |
| 2023 | Topic: An investigation into the use of modelling in the teaching and learning of linear functions at grade 11 in Tshinane circuit Student: Gumisai Kuona Degree: MEd (Mathematics Education) Institution: University of South Africa |
| 2024 | Topic: The effect of problem-solving teaching approach on learning fractions in Grade 8 Student: Oghenerukewe Emmanuel Agadagba Degree: MEd (Mathematics Education) Institution: University of South Africa |
| 2024 | Topic: Grade 6 Mathematics Teachers' Use of Inquiry-Based Learning as a Pedagogical Tool. Student: Nicole Cunningham Degree: MEd (Mathematics Education) Institution: University of Pretoria |
| 2025 | Topic: Exploring the teachers' views on utilising digital technology to teach grade 11 Euclidean Geometry. Student: Mmadisepitsana Annah Montji Degree: MEd (Mathematics Education) Institution: University of South Africa |
| Year | Doctorate |
| 2021 | Topic: Mathematical modeling and analysis of a non-newtonian fluid flows through a permeable stenosed arteries Student: Prabhaker Reddy Yasa Degree: PhD (Applied Mathematics) Institution: GITAM (Deemed to be University), India |
| 2021 | Topic: Classification and methods of identification of interatomic potentials Student: Takalani Malange Degree: PhD (Applied Mathematics) Institution: Tshwane University of Technology |
| 2022 | Topic: A Mathematical Study of Multicomponent Convection in Rotating Fluids. Student: Munyaradzi Rudziva Degree: PhD (Applied Mathematics) Institution: University of KwaZulu-Natal |
| 2022 | Topic: Exploring school safety in public secondary schools in the Gauteng Province |

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| | Student: Cheryl Lin Rielander Degree: PhD (Management Studies) Institution: University of South Africa |
| 2023 | Topic: Enhancing Mathematics Teachers' Professional Development for Creative Teaching in Addis Ababa Secondary Schools Student: Anwar Seid Al-Amin Degree: PhD (Mathematics Education) Institution: University of South Africa |
| 2024 | Topic: The Relevance of Students' Representative Councils to the Administration of Colleges of Education in Ghana Student: Florencia Adai Nottinson Degree: PhD (Education) Institution: University of South Africa |
| 2025 | Topic: Methods of Parameter Evaluation of Empirical Models. Student: Feranmi Elizabeth Olayiwola Degree: PhD (Applied Mathematics) Institution: Tshwane University of Technology |
| 2025 | Topic: Rural foundation phase teachers' mathematics discourses and approaches during lessons on patterns in Acornhoek, Mpumalanga Province. Student: Dorcus Sibongile Mlangeni Degree: PhD (Mathematics Education) Institution: University of South Africa |
| 2025 | Topic: Supporting learners' mathematical thinking through teacher questioning techniques: A case of grade 9 teachers in selected schools in Tshinane circuit in Limpopo Province. Student: Chipo Mangwiyo Degree: PhD (Mathematics Education) Institution: University of South Africa |
| 2025 | Topic: An Evaluation of the Alignment of ANA and SASE with Curriculum Expectations for Learner Achievement in Grade 6 Mathematics, and Teachers' Perceptions of Their Implementation. Student: Charlotte Madumelani Modzuka Degree: PhD (Mathematics Education) Institution: University of South Africa |

6.5. SUPERVISION

| WORK IN PROGRESS | |
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| 2022 | Student: Mr T. E. Mabelane Qualification: Master of Education in Higher Education Topic: Exploring the Transformation of Work Integrated Learning beyond the Covid-19: Focus on Alternative Modalities and their Assessment. Duty: Supervision Institution: Vaal University of Technology |
| 2022 | Student: Ms S. Hlasa |

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| | <p>Qualification: Master of Education in Higher Education Topic: Varied ICT Landscape Technological Tools' Impact on Curriculum Development At One University of Technology, South Africa Duty: Supervision Institution: Vaal University of Technology</p> |
| 2023 | <p>Student: Ms S. Nxumalo Qualification: Master of Education in Higher Education Topic: Integration of 3D-Printing into classrooms to enhance learning at a University of Technology Duty: Supervision Institution: Vaal University of Technology</p> |
| 2023 | <p>Student: Mr G.T. Mahlangu Qualification: Master of Education in Higher Education Topic: The Use of 3D Printing Technology as a Tool to Enhance South African Education in Higher Education Duty: Supervision Institution: Vaal University of Technology</p> |
| 2023 | <p>Student: Mr Z. Mpande Qualification: Master of Education in Higher Education Topic: Frustrations Faced by Students who are in Private Institutions and Cannot be Funded by NSFAS Duty: Supervision Institution: Vaal University of Technology</p> |
| 2024 | <p>Student: Ms C.M. Ramushwana Qualification: Master of Education in Higher Education Topic: Assessing government and institutional strategies for curriculum transformation in South African Universities of Technology Duty: Supervision Institution: Vaal University of Technology</p> |
| 2024 | <p>Student: Ms P.P. Selepe Qualification: Master of Education in Higher Education Topic: Exploring Challenges of Students' Accommodation at One University of Technology in Gauteng, South Africa Duty: Supervision Institution: Vaal University of Technology</p> |
| 2024 | <p>Student: Mr M.A. Twala Qualification: Master of Education in Higher Education Topic: The Impact of the NCV Curriculum on Tourism Students at One South African TVET College Duty: Supervision Institution: Vaal University of Technology</p> |
| 2024 | <p>Student: Mr K.N. Thovheyi</p> |

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| | <p>Qualification: PhD: Information Technology</p> <p>Topic: Predictive Analytics Model for Cloud Resource Optimization and Management</p> <p>Duty: Co-Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2024 | <p>Student: Ms L.A. Dibate</p> <p>Qualification: Master of Education in Higher Education</p> <p>Topic: Academics' Perceptions of Subject Content Knowledge: Impact on Teaching in a Private Higher Education Institution</p> <p>Duty: Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2025 | <p>Student: Mr L.M. Raborifi</p> <p>Qualification: Master of Business Administration</p> <p>Topic: The Efficacy of The Integrated Tertiary System on Online Registration for First Year Students in The Pedagogical Supply Chain in a University of Technology in Southern Gauteng</p> <p>Duty: Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2025 | <p>Student: Mr N.L. Kaeane</p> <p>Qualification: Doctor of Business Administration</p> <p>Topic: Leadership and Management of students' Engagement on Online learning: A case Study of Higher Education Institutions in Gauteng, South Africa</p> <p>Duty: Supervision</p> <p>Institution: Vaal University of Technology</p> |
| WORK COMPLETED | |
| 2021 | B Ed: 15 Research Projects Adv. Dip. TVET: 7 Research Projects |
| 2022 | B Ed: 14 Research Projects |
| 2023 | B Ed: 5 Research Projects Adv. Dip. TVET: 37 Research Projects |
| 2024 | Adv. Dip. TVET: 21 Research Projects |
| 2023 | <p>PhD:</p> <p>Student: Dr M.E. Rankapola</p> <p>Qualification: Doctoris Technologiae (Information & Communication Technology)</p> <p>Topic: A Model to Measure the E-learning System Success at a University of Technology in South Africa</p> <p>Duty: Co-Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2024 | <p>Student: Ms M. Esterhuyse</p> <p>Qualification: Master of Education in Higher Education</p> |

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| | <p>Topic: Investigating the Challenges of Implementing a Strategic Plan at a University of Technology</p> <p>Duty: Co-Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2024 | <p>Student: Ms R. Cudjoe</p> <p>Qualification: Master of Education in Higher Education</p> <p>Topic: Investigating the Effect of e-assessment on Enhancing Students' Learning: A Case Study of a University of Technology in the Vaal</p> <p>Duty: Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2025 | <p>Student: Mr M. M. Mahlakwana</p> <p>Qualification: Master of Education in Higher Education</p> <p>Topic: Investigating the Impact of Shifting from Traditional Assessment to Remote Learning in Higher Education as a result of Covid-19</p> <p>Duty: Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2025 | <p>Student: Mr N. L. Kaeane</p> <p>Qualification: Master of Education in Higher Education</p> <p>Topic: Investigating the Emergence of Online Learning in Higher Education Institutions of South Africa in a Post-Covid-19 Era: A Case Study of a University of Technology in the Vaal, Gauteng South.</p> <p>Duty: Supervision</p> <p>Institution: Vaal University of Technology</p> |
| 2025 | <p>Student: Mr P.M. Vilakati</p> <p>Qualification: Master of Visual Arts in Graphic Design</p> <p>Topic: Exploring the Use of 2D Digital Animation to Enhance Mathematics Learning. A Case Study of Rural Public Primary Schools in Lubombo Region in Eswatini</p> <p>Duty: Supervision</p> <p>Institution: Vaal University of Technology</p> |

6.6. National Research Foundation (NRF) Rating Reviewer

1. Prof M Shatalov 2018, C2 rated, Tshwane University of Technology.
2. Prof M Machaba 2024, C2 rated, UNISA

6.7. Module Critical Review

1. Mathematics for Intermediate Phase Teachers I MIP1501 (2019) Unisa
2. Mathematics for Intermediate Phase Teachers I MIP1501 (2023) Unisa
3. Mathematics for Intermediate Phase Teachers I MIP1501 (2025) Unisa

7. PROFESSIONAL MEMBERSHIP

1. South African Mathematical Society (SAMS)
2. International Association of Advanced Materials (IAAM)
3. South African Certificate of Educators (SACE)
4. South African Association for Theoretical and Applied Mechanics (SAAM)

8. PROFESSIONAL JOURNAL REVIEW

Registered Reviewer for the following Journals:

1. Hindawi Publishing Corporation – Computational and Mathematical Methods in Medicine
2. Hindawi Publishing Corporation – Advances in Mathematical Physics
3. Institute of Electrical and Electronics Engineers Innovative Smart Grid Technologies (IEEE Conference Proceedings)
4. Advancement on Mechanical and Manufacturing Engineering Technology (Conference Proceedings)
5. Journal of Engineering, Design and Technology
6. Mathematical Methods in the Applied Sciences
7. Computational and Mathematical Organization Theory
8. Transmission and Distribution Conference and Exposition Latin America (Conference Proceedings)
9. Defect and Diffusion Forum
10. Diffusion Foundation
11. Computational Thermal Sciences
12. Indian Journal of Physics
13. Journal of Nanofluids
14. American Journal of Applied Sciences
15. American Journal of Applied Mathematics
16. MAYFEB Journal
17. WSEAS Journals

2014-date: **Technical Program Committee** (TPC) member and **Reviewer** for selected EDAS (Editor's Assistant) managed Conferences.

2018: **Technical Program Committee** (TPC) member and **Reviewer** for the 11th South African Conference on Computational and Applied Mechanics 2018 (SACAM2018)

2019: **Reviewer** for the 10th Annual International Conference on Social Sciences (ICSS2019)

2024: **Technical Program Committee** (TPC) member African Society for Industrial and Applied Mathematics (ASIAM).

9. EDITORIAL TASK

2025 to date: Journal: Mathematics (ISSN 2227-7390; MDPI AG) Scopus indexed, DHET Accredited.
Position: Guest Editor: Special Issue: *Dynamics Advances and Applications in Computational Fluid Dynamics*.

2025 to date: Journal: Frontiers in Applied Mathematics and Statistics (Frontiers Media S.A.) (ISSN 2297-4687) Scopus indexed, DHET Accredited.
 Position: Guest Editor: Special Issue: *New Frontiers in the Application of Mathematics to Biological Sciences*

2025 to date: Journal: Mathematics and Systems Science (eISSN: 3029-2522)
 Position: Editorial Board Member

2024 to date: Journal: Revista Internacional de Metodos Numericos para Calculo y Diseno en Ingenieria (ISSN 0213-1315, Scopus indexed)
 Position: Lead Guest Editor: Special Issue: *Numerical Methods and Simulations in Applied Mathematics*.

2023 to date: Journal: Contemporary Mathematics (ISSN 2705-1056, ESCI & Scopus indexed)
 Position: Guest Editor: Special Issue: *Numerical Methods and Simulations in Applied Mathematics*.

2022 - 2024: Journal: Mathematics (ISSN 2227-7390; MDPI AG) Scopus indexed, DHET Accredited.
 Position: Guest Editor: Special Issue: *Analysis and Applications of Mathematical Fluid Dynamics*.

2021 - 2024: Journal: Frontiers in Applied Mathematics and Statistics (Frontiers Media S.A.) (ISSN 2297-4687) Scopus indexed, DHET Accredited.
 Position: Guest Editor: Special Issue: *Modelling and Numerical Simulations with Differential Equations in Mathematical Biology, Medicine and the Environment*

2020 - 2022: Journal: Defect and Diffusion Forum (ISNN 166-29507, Scientific.Net) Scopus indexed, DHET Accredited.
 Position: Editor: Special Issue: *Computational Fluid Dynamics and Mathematical Modelling*.

2018 to date: Journal: Materials Science: Materials Review
 Position: Editorial Board Member

2018-2020: Journal: American Journal of Applied Mathematics
 Position: Editorial Board Member

2015-2017: Journal: Advances in Mechanical Engineering (SAGE) (ISSN 1687-8132) Scopus indexed, DHET Accredited.
 Position: Lead Guest Editor: Special issue: *Mathematical Application and Computing in Mechanical Engineering*.

2016 to date: Journal: MAYFEB Journal of Mechanical Engineering
 Position: Editorial Board Member

LOCAL AND INTERNATIONAL CONFERENCES

10. PRESENTATIONS AT CONFERENCES

2008: Technology and its Integration in Mathematics Education (TIME2008) – Buffelspoort, S.A.
Title: Solution of heat equation with variable coefficient using derive

2008: 51st SAMS Congress, University of Kwa-Zulu Natal – Durban, S.A.
Title: Solution of heat equation with variable coefficient

2010: 53rd South African Mathematical Society (SAMS) Congress, University of Pretoria, S.A

Title: Heat Transfer in Media where Properties are Variable

2012: 55th South African Mathematical Society (SAMS) Congress, Stellenbosch University, S.A.
Title: Computational Model of CO₂ Emission, O₂ Depletion and Thermal Stability of a Radiating Slab

2013: 56th South African Mathematical Society (SAMS) Congress, University of Kwa-Zulu Natal – Pietermaritzburg, S.A.
Title: Modelling the impact of radiative heat loss on CO₂ emission, O₂ depletion and thermal stability in a reactive slab

2013: International Conference on Chemistry, Mathematics, Science and Engineering (ICCMSE2013), Vaal University of Technology – Vanderbijlpark, S.A.
Title: Numerical Investigation of CO₂ Emission and Thermal Stability of a Convective and Radiative Stockpile of Reactive Material in a Cylindrical Pipe

2014: International Conference on Fundamental & Applied Sciences (ICFAS2014), Kuala Lumpur Conference Centre – Kuala Lumpur – Malaysia.
Title: Numerical investigation of CO₂ emission, O₂ depletion and Thermal stability in a convective and radiating stockpile of reactive material in a cylindrical pipe of variable thermal conductivity

2015: World Symposium on Mechatronics Engineering & Applied Physics (WSMEAP'2015), Sousse – Tunisia.
Title: Convective and radiative heat loss impact on CO₂ emission, O₂ depletion and thermal stability in a reactive slab of variable thermal conductivity

2016: International Conference on Design and Production Engineering (Design & Production) 2016, Berlin – Germany.
Title: Thermal stability investigation in media of different physical geometries

2016: International Conference on Fundamental & Applied Sciences (ICFAS2016), Kuala Lumpur – Malaysia.
Title: Investigation of Transient Heat in a Reactive Slab of Variable Thermal Conductivity

2016: American Advanced Materials Congress (AAMC2016), Miami – USA.
Title: Radiative heat loss impact modelling on thermal decomposition analysis in a reactive slab of variable thermal conductivity

2017: International Conference on Advance Materials, Mechanical Engineering and Technology (ICAMMET2017), Hangzhou, China.
Title: On Heat Transfer Analysis for a Sphere of Combustible Material of Variable Thermal Conductivity

2018: International Conference on Recent Research in Materials and Engineering (ICRRME2018), **Virtual Presentation**, Visakhapatnam, Andhra Pradesh, India.
Title: Heat loss analysis in a radiating slab of variable thermal conductivity

2018: International Conference on Fundamental & Applied Science (ICFAS2018) Kuala Lumpur, Malaysia
Title: On Heat Transfer of a Convective Radiating Cylinder

2018: International Conference on Innovations in Engineering, Technology and Sciences (ICIETS2018), **Virtual Presentation**, NIE Institute of Technology, No 50(Part), Koorgalli, Hootagalli Industrial Area, Next to BEML, Mysore – 570 018, Karnataka, India.

Title: Heat Loss Analysis in a Spherical Domain due to Convection and Radiation

2018: 11th South African Conference on Computational and Applied Mechanics (SACAM2018), Vaal University of Technology, Quest Conference Centre, Vanderbijlpark, South Africa.

Title: Steady-state heat transit analysis in a spherical domain

2019: 12th Research Seminar for Faculty of Human Science: Fundamental Change in Social Sciences Through Research, Vaal University of Technology, Quest Conference Centre, Vanderbijlpark, South Africa.

Title: Reconceptualising Assessment Strategies in the Postgraduate Diploma Programme: A Conflict Perspective

2020: 9th International Conference on Mathematical Modeling in the Physical (IC-MSQUARE2020), **Virtual Presentation**, Tinos Island, Greece.

Title: On transient heat analysis of a two-step convective reactive cylinder

2020: 2020 International Conference on Mechanical Engineering and Materials (ICMEM 2020), **Virtual Presentation**, Beijing, China.

Title: Two-Step Exothermic Chemical Reaction for Heat Transfer Investigation in a Convective Cylinder

2020: 2020 International Conferences on Multidisciplinary Research (MyRes2020) **Virtual Presentation**, Voila Hotel, Bagatelle, Moka, Mauritius.

Title: Impact of Replacing Supplementary Examinations with Second Opportunity Examinations in a South African University of Technology

2021: The 6th International Conference of Science, Technology, Engineering and Mathematics (STEM2021) **Virtual Presentation**, Vancouver, Canada. 05-09/07/2021

Title: Impact of mathematics centre intervention at a South African University of Technology

2021: International Congress on Social Sciences, China to Adriatic-XIII **Virtual Presentation**, Ankara, Turkey. 07/08/2021

Title: How Close Relationships in Higher Education Impact Students' lives: Friendships and Romantic Relationships

2021: International Halich Congress on Multidisciplinary Scientific Research 2021 **Virtual Presentation**, Istanbul, Turkey. 16/08/2021

Title: Content Analysis Study: Examining the Factors of Effective Teaching Strategies: Case of Vaal University of Technology

2021: International Marmara Scientific Research and Innovation Congress 2021 **Virtual Presentation**, Istanbul, Turkey. 21-22/08/2021

Title: Temperature Distribution Analysis Using Linear Lines Method

2021: 7th International Scientific Research Conference 2021 **Virtual Presentation**, Adana, Turkey. 07-08/09/2021

Title: Approximating Temperature Distribution in a Medium of Constant Thermal Conductivity Using Step Functions

2021: International Cappadocia Scientific Research Congress 2021 **Virtual Presentation**, Cappadocia-Nevsehir, Turkey. 15-17/12/2021

Title: Subsequent Call of Decolonisation at One University in South Africa

2022: 7th International Zeugma Conference on Scientific Research **Virtual Presentation**, Gaziantep, Turkey. 21-23/01/2022

Title: An Evaluation of the Use of E-learning as a Learning Tool: A Case Study at one TVET College in Sedibeng District, South Africa

2022: ASES International Social Sciences Congress

Virtual Presentation, Diyarbakir, Turkey. 27-29/05/2022

Title: Impact of Group Work on Low-Performing Grade 12 Learners in a South African Province

2023: VUT Annual Teaching and Learning Conference Programme
Vanderbijlpark, South Africa. 27-29/09/2023
Title: Investigating Group Work Impact on Less-Performing Grade 12 Learners: A Case Study of One Province in South Africa.

2023: International Conference on “Neoteric Advancements in Analysis and Applied Mathematics (NA3M). Chandigarh University, India. 18-19/12/2023 (**Keynote speaker**)
Title: Investigating a Steady-State Transient Heat in a Radiative Cylinder.

2024: African Conference of Industrial and Applied Mathematics (ACIAM 2024).
Cape Town, South Africa. 30/09-05/10/2024
Title: Impact of Temperature Increase on Oxygen Depletion in Varied Exothermic Chemical Reaction Steps.

2025: 2nd International Conference on the Futuristic Materials for Sustainable Development Goals (FMSDG2025). Emerald Hotel, Vandrbijlpark, South Africa. 07 – 09/04/2025 (**Keynote speaker**)
Title: Heat Transfer Analysis of a Two-Step Nitrogen Dioxide Decomposition: A Numerical Approach.

2025: 2nd International Experts Meets on Applied Science, Engineering and Technology (IEMASET-2025). **Virtual Presentation**, Dubai UAE. 16 – 17/06/2025 (**Keynote speaker**)
Title: Numerical Investigation of Transient Heat in a 4-Step Kerosene Combustion of a Radiating Convective Reactive Cylinder.

2025: 1st International Conference on Innovative Pathways for Sustainable Futures (IPSF2025). Emerald Hotel, Vanderbijlpark, South Africa. 20-21/11/2025
Title 1: Climate Change Due to Exothermic Chemical Reaction of Reactive Materials: A Mathematical Approach
Title 2: Group Work Impact on Low-Performing Learners: Case Study - Grade 12 Learners in one Province of South Africa.

11. MANUSCRIPTS SUBMITTED: CONFERENCES & JOURNALS

2023: KC Moloi, RS Lebelo, SO Adesanya, “Awqaf and Social Transformation In Contemporary Times: Lessons from The Awqaf National Foundation South Africa: Awqaf and Social Transformation” **Journal:** Journal of Islamic Studies (**accepted**)

2024: AK Isabirye, KC Moloi, RS Lebelo, “Youth Workplace Anger Management: Causes, Strategies, Implications, and Best Practices” **Journal:** Seminare (**accepted**)

PUBLICATIONS

12. ACADEMIC ARTICLE PUBLICATIONS

2008: **RS Lebelo**, I Fedotov & M Shatalov, “Solution of Heat Equation with Variable Coefficient Using Derive”, Buffelspoort TIME2008 Peer-reviewed Conference Proceedings, 22 – 26 September 2008, pp. 129-137.

2011: OD Makinde, T Chinyoka & **RS Lebelo**, “Numerical Investigation into CO₂ Emission, O₂ Depletion, and Thermal Decomposition in a Reacting Slab”, Mathematical Problems in Engineering, Volume 2011 (2011), Article ID 208426 (ISI)

2014: **RS Lebelo**, “Numerical investigation of CO₂ emission, O₂ depletion and Thermal stability in a convective and radiating stockpile of reactive material in a cylindrical pipe of variable thermal conductivity” 3rd International Conference of Fundamental and Applied Sciences (ICFAS 2014), AIP Conf. Proc. 1621, pp. 60-68 (2014), DOI: 10.1063/1.4898446

2015: **RS Lebelo** & OD Makinde, “Modelling the impact of radiative heat loss on CO₂ emission, O₂ depletion and thermal stability in a reactive slab” Iranian Journal of Science and Technology of Mechanical Engineering, Vol. 39, No. M2, pp 351-365, 2015 (ISI)

2015: **RS Lebelo** & OD Makinde, “Numerical Investigation of CO₂ Emission and Thermal Stability of a Convective and Radiative Stockpile of Reactive Material in a Cylindrical Pipe” Advances in Mechanical Engineering (AME), Vol. 7(12), pp 1–11, 2015 (ISI)

2015: **RS Lebelo**, “Convective and radiative heat loss impact on CO₂ emission, O₂ depletion and thermal stability in a reactive slab of variable thermal conductivity” World Symposium on Mechatronics Engineering and Applied Physics (WSMEAP’2015) Proceedings, IEEE Conference Record 36345, ISBN: 978-1-4673-6583-3

2016: **RS Lebelo**, “Thermal stability investigation in a reactive sphere of combustible material” Advances in Mathematical Physics, Vol. 2016, Article ID 9384541, 2016. (ISI)

2016: **RS Lebelo**, “Transient heat analysis in a spherical domain of combustible material” Journal of Communication and Computer, Vol. 13, pp. 159-163, (2016): doi:10.17265/1548-7709/2016.04.002

2016: **RS Lebelo**, OD Makinde & KO Okosun, “Numerical investigation of thermal stability in a Spherical Domain of Combustible Material of Variable Thermal Conductivity” Global Journal of Pure and Applied Mathematics, Vol. 12(5), pp. 4335-4347, 2016: ISSN 0973-1768. (Scopus)

2016: **RS Lebelo**, “Investigation of Transient Heat in a Reactive Slab of Variable Thermal Conductivity” 3rd International Conference of Fundamental and Applied Sciences (ICFAS 2016), AIP Conf. Proc. 1787, 020008 (2016); doi: 10.1063/1.4968057

2016: ST Ogunlade, KO Okosun, **RS Lebelo**, M Mukamuri, “Optimal Control Analysis of Cryptosporidiosis Disease” Global Journal of Pure and Applied Mathematics, Vol. 12(6), pp. 4959-4989, 2016: ISSN 0973-1768. (Scopus)

2017: **RS Lebelo**, SO Adesanya, “Oxygen depletion and thermal stability analysis in a reactive sphere of variable thermal conductivity,” Global Journal of Pure and Applied Mathematics, Volume 13, Number 1 (2017), pp. 9-31(Scopus)

2017: **RS Lebelo** & OD Makinde, “Analysis of CO₂ emission, O₂ depletion and Thermal stability in a convecting and radiating reactive slab” Global Journal of Pure and Applied Mathematics, Vol. 13(2), pp. 537-563, 2017: ISSN 0973-1768. (Scopus)

2017: **RS Lebelo**, OD Makinde & T Chinyoka, "Thermal Decomposition Analysis in a Sphere of Combustible Materials" *Advances in Mechanical Engineering (AME)*, 2017, Vol. 9(2), pp. 1–14, 2017 **(ISI)**

2017: SO Adesanya, MB Fakoya, JA Falade, **RS Lebelo** & DM Okewole, "Existence of Secondary Flow in a Reactive Viscous Fluid Through a Channel filled with Porous Medium" *International Journal of Heat and Technology (IJHT)*, 2017, Vol. 35(2), pp. 262-266. **(Scopus)**

2017: JA Falade, SO Adesanya, **RS Lebelo** & SO Kareem, "Second Law Analysis for a Porous Channel Flow with Asymmetric Slip and Convective Boundary Conditions" *International Journal of Pure and Applied Mathematics (IJPAM)*, 2017, Vol. 115(2), pp. 247-257. **(Scopus)**

2017: SO Adesanya, J.A. Falade, J.C. Ukaegbu & **RS Lebelo**, "Thermodynamics analysis for a reacting couple stress fluid flow through a vertical channel", *International Journal of Pure and Applied Mathematics (IJPAM)*, 2017, Vol.114(3), pp. 419-434. **(Scopus)**

2017: AR Hassan, SO Adesanya, **RS Lebelo**, JA Falade, "Irreversibility analysis for a mixed convective flow of a reactive couple stress fluid flow through channel saturated porous materials," *International Journal of Heat and Technology (IJHT)*, 2017, Vol. 35(3), pp. 633-638. **(Scopus)**

2017: **RS Lebelo**, "Thermal Conductivity Impact on Thermal Stability of Combustible Materials," *Diffusion Foundation*, 2017, Vol 11(1), pp. 1-10.

2017: SO Adesanya, HA Ogunseye, JA Falade, **RS Lebelo**, "Thermodynamic Analysis for Buoyancy-Induced Couple Stress Nanofluid with Constant Heat Flux," *Entropy*, 2017, Vol. 19(580), pp. 1-19. **(ISI)**

2017: **RS Lebelo**, RK Mahlobo, SO Adesanya, MS Muthuvalu, "On Heat Transfer Analysis for a Sphere of Combustible Material of Variable Thermal Conductivity" *IOP Conf. Series: Materials Science and Engineering* 269 (2017) 012062, pp. 1-6. doi:10.1088/1757-899X/269/1/012062 **(Scopus)**

2017: **RS Lebelo**, BR Mabuza, "Numerical investigation of thermal stability investigation in media of different physical geometries" *Journal of Engineering and Applied Sciences*, 2017, Vol 12(24), pp. 7555-7561. **(ISI)**

2017: **RS Lebelo**, KO Okosun, F Mtunzi, MS Muthuvalu, RK Mahlobo, "Thermal stability and reactant consumption analysis in a reactive cylinder of variable thermal conductivity," *International Review of Mechanical Engineering*, 2017, Vol 11(11), pp. 787-796. **(Scopus)**

2018: **RS Lebelo**, RK Mahlobo, KC Moloi, "Thermal stability analysis in a two-step reactive cylindrical stockpile" *American Journal of Applied Sciences*, 2018, Vol 15 (2), pp. 124-131. **(Scopus)**

2018: **RS Lebelo**, KC Moloi, "Heat loss analysis in a radiating slab of variable thermal conductivity", *International Journal of Engineering & Technology*, Vol 7 (2.23), pp. 228-231. **(Scopus)**

2018: **RS Lebelo**, KC Moloi, CC Chitumwa, SO Adesanya, "Radiation and thermal decomposition analysis in a reactive slab of variable thermal conductivity." *International Journal of Engineering & Technology*, Vol 7 (3.19), pp. 27-32. **(Scopus)**

2018: SO Adesanya, L Rundora, **RS Lebelo**, KC Moloi, "MHD Natural Convection Slip Flow through Vertical Porous Plates with Time-Periodic Boundary Conditions" *Defect and Diffusion Forum*, Vol 388, pp 135-145. **(Scopus)**

2018: **RS Lebelo**, KC Moloi, CC Chitumwa, MWR Sadiki, P Baloyi, SO Adesanya, "On Thermal Stability Analysis of a Convective and Radiative Slab of Variable

Thermal Conductivity with Reactant Consumption." Defect and Diffusion Forum, Vol. 389, pp 195-204. **(Scopus)**

2018: SO Adesanya, **RS Lebelo**, KC Moloi, "Evaluation of Heat Irreversibility in a Thin Film Flow of Couple Stress Fluid on a Moving Belt." Advances in Mathematical Physics, Vol. 2018, Article ID 6237592, pp 1-6. **(Scopus)**

2018: SO Adesanya, HA Ogunseye, **RS Lebelo**, KC Moloi, OG Adeyemi, "Second law analysis for nonlinear convective flow of a reactive couple stress fluid through a vertical channel." *Heliyon*, Vol. 4 (2018) e009, pp 1-17. **(Scopus)**

2018: **RS Lebelo**, KC Moloi, KO Okosun, M Mukamuri, SO Adesanya, MS Muthuvalu, "Two-step low-temperature oxidation for thermal stability analysis of a combustible sphere" *Alexandria Engineering Journal*, Vol. 57, pp 2829–2835 **(Scopus)**

2018: S Jangili, SO Adesanya, HA Ogunseye, **RS Lebelo**, "Couple stress fluid flow with variable properties: A second law analysis" *Mathematical Methods in the Applied Sciences*, Vol. (2018), pp 1–14. **(Scopus)**

2018: **RS Lebelo**, KC Moloi, CC Chitumwa, MWR Sadiki, P Baloyi, MS Muthuvalu, "On heat transfer of a convective radiating cylinder" *Journal of Physics: Conference Series*, Vol. 1123 (012037), pp 1-5.
doi :10.1088/1742-6596/1123/1/012037

2018: A Hussain, MS Muthuvalu, MKM Ali, **RS Lebelo**, "Numerical Study of Glioma Growth Model with Treatment Using the Two-Stage Gauss-Seidel Method" *Journal of Physics: Conference Series*, Vol. 1123 (012040), pp 1-8.
doi :10.1088/1742-6596/1123/1/012040

2018: **RS Lebelo**, KC Moloi, CC Chitumwa, M Sadiki, P Baloyi "Steady-state Heat Transit Analysis in a Spherical Domain", Southern Africa Conference on Applied Mechanics (SACAM2018), paper No. 73, pp 828-834, ISBN: 978-1-77012-143-0

2019: **RS Lebelo**, "Transient Heat and Reactant Consumption investigation in a Cylindrical Pipe of Variable Thermal Conductivity". Defect and Diffusion Forum, Vol. 392, pp 178-188. **(Scopus)**

2019: SO Adesanya, AC Egere, **RS Lebelo**, "Entropy generation analysis for a thin couple stress film flow over an inclined surface with Newtonian cooling" *Physica A*, Vol. 528 (121260), pp 1 – 9. **(ISI)**

2019: **RS Lebelo**, RK Mahlobo, SO Adesanya, "Reactant Consumption and Thermal Decomposition Analysis in a Two-Step Combustible Slab" Defect and Diffusion Forum, Vol. 393, pp 59-72. **(Scopus)**

2019: MS Muthuvalu, E Galligani, MKM Ali, J Sulaiman, **RS Lebelo**, "Performance analysis of Arithmetic Mean method for solving composite 6-point closed Newton–Cotes quadrature algebraic equation" *Asian-European Journal of Mathematics*, Vol. 12 (4), pp 1950061-1 - 1950061-10. **(Scopus)**

2019: DM Makanyane, IP Ejidike, CC Ssemakalu, FM Mtunzi, VE Pakade, MJ Klink, **RS Lebelo**, "GC-MS Analysis and extraction optimization of bioactive compounds from pelargonium graveolens l'hér methanolic extract and their activities as pharmacological agents" *International Research Journal of Pharmacy*, Vol. 10 (9), pp 59 - 73. **(Scopus)**

2020: **RS Lebelo**, "On Heat Transfer of a two-step radiating slab of variable thermal conductivity" *Materials Science Forum*, Vol. 987, pp 137-141. **(Scopus)**

2020: SO Adesanya, AC Egere, JC Ukaegbu, **RS Lebelo**, "Influence of temperature-dependent properties on a gravity-driven thin film along inclined plate" *Nonlinear Engineering*, Vol. 9, pp 118 – 123. **(Scopus)**

2020: Olaniyi S, Okosun KO, Adesanya SO, **RS Lebelo**, “Modelling malaria dynamics with partial immunity and protected travellers: optimal control and cost effectiveness analysis” *Journal of Biological Dynamics*, Vol. 14(1), pp. 90–115. (**Scopus**)

2020: SO Akindeinde, SO Adesanya, **RS Lebelo**, KC Moloi, “A new multistage Parker-Sochacki method for solving the Troesch’s problem” *International Journal of Engineering & Technology*, Vol. 9 (2), pp. 592-601.

2020: RK Mahlobo, **RS Lebelo**, “Impact of Replacing Supplementary Examinations with Second Opportunity Examinations in a South African University of Technology” *Proceedings of the 2020 International Conference on Multidisciplinary Research (MyRes)*, <http://www.myres.net/>, <https://doi.org/10.26803/MyRes.20.12.14>, pp 36-53.

2020: **RS Lebelo**, KC Moloi, S Jaffer “Coronavirus global pandemic and change to online learning in one South African private higher education institution: An Action Research” *Loyola Journal of Social Sciences*, Vol. XXXIV (2), pp 51-74. (**IBSS**)

2021: **RS Lebelo**, KC Moloi, “Transient Heat Analysis in a Two-Step radiative Combustible Slab” *Key Engineering Materials*, Vol. 872, pp. 15-19. (**Scopus**)

2021: **RS Lebelo**, M Waetzel, RK Mahlobo, KC Moloi, SO Adesanya, “On transient heat analysis of a two-step convective reactive cylinder” *Journal of Physics: Conference Series*, Vol. 1730 (2021) 012141, pp. 1-5. (**Scopus**)

2021: **RS Lebelo**, “Recent Study on Heat Transfer Analysis for a Sphere of Combustible Material of Variable Thermal Conductivity”, *Advanced Aspects of Engineering Research*, Vol. 3, Chapter 6, pp. 81-91.

2021: **RS Lebelo**, RK Mahlobo, SO Adesanya “Investigating Thermal Stability in a Two-Step Convective Radiating Cylindrical Pipe” *Defect and Diffusion Forum*, Vol. 408, pp. 99-107. (**Scopus**)

2021: **RS Lebelo**, OD Makinde, “Two Step Exothermic Chemical Reaction for Heat Transfer Investigation in a Convective Cylinder” *Mechanical Engineering and Materials*, Vol. 1, Chapter 5, pp. 49-58.

2021: **RS Lebelo**, KC Moloi, CC Chitumwa, “Decolonising the Postgraduate Diploma in Higher Education Curriculum at one University of Technology in South Africa” *South African Journal of Higher Education (SAJHE)*, Vol. 35 (1), pp. 82–95

2021: AO Adewumi, SO Akindeinde, **RS Lebelo**, “Sumudu Lagrange-spectral methods for solving systems of linear and nonlinear Volterra integro-differential equations” *Applied Numerical Mathematics*, Vol. 69, pp. 146-163.

2021: **RS Lebelo**, SO Adesanya, SO Akindeinde, RK Mahlobo “Investigating Oxygen Depletion in a Two-Step Combustible Stockpile” *Kasmera*, Vol 49(1), pp. 2-10.

2021: SO Akindeinde, OA Adewumi, **RS Lebelo**, “Approximate Analytical Solution of a Power-Law Pseudoplastic Fluid in a Boundary Layer over a Porous Plate: A New Application of Multi-Stage Parker-Sochacki Method” *International Journal of Engineering Research in Africa*, Vol. 55, pp 1-14.

2021: AT Adeosun, JA Gbadeyan, **RS Lebelo**, “Heat Transport of Casson Nanofluid Flow over a Melting Riga Plate Embedded in a Porous Medium” *International Journal of Engineering Research in Africa*, Vol. 55, pp 15-27.

2021: KC Moloi, **RS Lebelo**, VI Zwane, “Reconceptualising Assessment Strategies in the Postgraduate Diploma Programme: A Conflict Perspective” *GORTERIA*, Vol. 61(4), pp. 2-23.

2021: NIC Thwala, Motolla LS, **RS Lebelo**, Khumalo S, Mabunda MR, “How

Close Relationships in Higher Education Impact Students' Lives: Friendships And Romantic Relationships." International Congress on Social Sciences, China to Adriatic-XIII, <http://www.icssca.org/>, ISBN - 978-605-70611-3-3, pp. 16-25.

2021: **RS Lebelo**, "Temperature Distribution Analysis Using Linear Lines Method." International Marmara Scientific Research and Innovation Congress, <http://www.isarconference.org/>, ISBN: 978-625-7562-70-6, pp. 1069-1075.

2021: W Barros, **RS Lebelo**, "Content Analysis Study: Examining the Factors of Effective Teaching Strategies: Case of Vaal University of Technology." International Halich Congress on Multidisciplinary Scientific Research, <http://www.izdas.org/>, ISBN: 978-625-7464-04-8, pp. 333-339.

2021: **RS Lebelo**, SO Akindeinde "Approximating Temperature Distribution in a Medium of Constant Thermal Conductivity Using Step Functions." 7th International Scientific Research Conference 2021, <https://www.iksadkongre.net/kongre-kitaplari>, ISBN: 978-625-7464-17-8, pp. 17-24.

2021: RK Mahlobo, **RS Lebelo**, "Impact of Mathematics Centre Intervention at a South African University of Technology." 6th International Conference of Science, Technology, Engineering and Mathematics (STEM2021) <https://dx.doi.org/10.14288/1.0402129>, ISBN: 978-0-88865-476-2, pp. 270-277.

2021: **RS Lebelo**, AT Adeosun, JA Gbadeyan, SO Akindeinde, "On heat transfer stability for a convective reactive material of variable thermal conductivity in a sphere." Gorteria, Vol. 34 (11), pp. 62-74

2021: ME Baloyi, **RS Lebelo**, "Subsequent Call of Decolonisation at One University in South Africa." International Cappadocia Scientific Research Congress <https://en.cappadociacongress.org/>, ISBN: 978-625-8423-62-4, pp. 256-262

2022: SO Akindeinde, E Okyere, AO Adewumi, **RS Lebelo**, OO Fabelurin, SE Moore, "Caputo fractional-order SEIRP model for COVID-19 Pandemic" Alexandria Engineering Journal, Vol. 61, pp. 829-845.

2022: LT Mashego, S Shongwe, **RS Lebelo**, "An Evaluation of the Use of E-learning as a Learning Tool: A Case Study at one TVET College in Sedibeng District, South Africa" 7th International Zeugma Conference on Scientific Research, Gaziantep, Turkey, <https://en.zeugmakongresi.org/> ISBN- 978-625-7464-72-7, pp. 9-14.

2022: AO Adewumi, SO Akindeinde, **RS Lebelo**, "Variable Transform-Based Semi-Analytical Methods for Solving Convective Straight Fins Problem With Temperature-Dependent Thermal Conductivity" Scientific Africa Journal, Vol. 16, pp. 1-13.

2022: **RS Lebelo**, W Barros, SO Akindeinde, "Temperature Distribution Comparison in Smooth and Stepped Functions" Defect and Diffusion Forum, Vol. 415, pp 39-52.

2022: MS Muthuvalu, E Aruchunan, MKM Ali, JVL Chew, A Sunarto, **RS Lebelo**, J Sulaiman, "Complexity Reduction Approach for Solving Second Kind of Fredholm Integral Equations" Symmetry, Vol. 14, 1017, pp. 1-14.

2022: SO Adesanya, TA Yusuf, **RS Lebelo** "Nonlinear Mixed Convection in a Reactive Third-Grade Fluid Flow with Convective Wall Cooling and Variable Properties" Mathematics, Vol. 10, 1017, pp. 1-20.

2022: SO Adesanya, TA Yusuf, **RS Lebelo** "Numerical Investigation of the Magnetized Reactive Viscous Couple Stress Fluid Flow Down an Inclined Riga

Plate with Variable Viscosity” Mathematics, Vol. 10, 4713, pp. 1-15.

2022: KB Kasali, SO Akindeinde, YO Tijani, AO Adewumi, **RS Lebelo** “Thermal and Multi-Boiling Analysis of a Rectangular Porous Fin: A spectral approach” Nonlinear Engineering, Vol. 11, pp. 654–663.

2022: **RS Lebelo**, SO Adesanya, MS Muthuvalu, SO Akindeinde, TA Yusuf, AT Adeosun “Carbon-dioxide Emission Analysis in a Convective Cylindrical Pipe” WSEAS Transactions on Systems and Control, Vol. 17, pp. 589-598.

2023: PO Banjo, **RS Lebelo**, SO Adesanya, “Exergy Analysis for Combustible Third-Grade Fluid Flow through a Medium with Variable Electrical Conductivity and Porous Permeability” Mathematics, Vol. 11, 1882, pp. 1-14

2023: KC Moloi, **RS Lebelo**, SO Adesanya, SO Akindeinde, “Decolonisation of history in the South African School Curriculum” **Journal:** Mitteilungen Klosterneuburg, Vol. 73(5), pp. 23-35.

2023: KC Moloi, **RS Lebelo**, M R Ariefdien, S Jaffer, S Martin, R Hoosain, “A case study on the learning facilitation adopted at Madina Institute Orientation Programme” **Journal:** Mitteilungen Klosterneuburg, Vol 73(7), pp. 2-14.

2023: KC Moloi, BR Grobler, E Venter, **RS Lebelo**, “Parental Reasons for Choice of Primary Schools in District 12 Region of Gauteng West, South Africa” **Journal:** Interciencia, Vol. 48(6), pp. 105-141.

2023: SO Salawu, HA Ogunseye, TA Yusuf, **RS Lebelo**, RA Mustapha, “Entropy Generation in a Magnetohydrodynamic Hybrid Nanofluid Flow over a Nonlinear Permeable Surface with Velocity Slip Effect” **Journal:** WSEAS Transactions on Fluid Mechanics, Vol. 18(4), pp. 34-48.

2023: TA Yusuf, AT Adeosun, VO Akinsola, **RS Lebelo**, OJ Akinremi, “Numerical Investigation for Nonlinear Thermal Radiation in MHD Cu–Water Nanofluid Flow in a Channel with Convective Boundary Conditions” **Journal:** Mathematics, Vol. 11, 3409, pp. 1-16.

2023: AT Adeosun, JC Ukaegbu, **RS Lebelo**, “Numerical Investigation of a Combustible Polymer in a Rectangular Stockpile: A Spectral Approach” **Journal:** Mathematics, Vol. 11, 3510, pp. 1-17.

2023: KC Moloi, I Etbaigha, A Isabirye, A Bayat, **RS Lebelo**, “Investigating Learning Organisation Metaphor Application in Enabling the Local Municipality to Improve Service Delivery to its Communities. A Theoretical Perspective” **Journal:** Interciencia, Vol. 48(9), pp. 1-30.

2023: RK Mahlolo, **RS Lebelo**, “Investigation of Rules for Decomposition of the Polynomial of the Form $\frac{N(p)}{D(p)}$ into Partial Fractions.” **Journal:** Interciencia, Vol. 48(9), pp. 50-65.

2023: SO Adesanya, TA Adeosun, TA Yusuf, AA Adeyemi, JS Bamigboye, A Ogunlaja, **RS Lebelo**, EI Unuabonah “Numerical examination of concentration-dependent wastewater sludge ejected into a drinking water source” **Journal:** Scientific Reports, Vol. (2023) 13:15538, pp. 1-12.

2023: TA Adeosun, SO Adesanya, **RS Lebelo**, JC Ukaegbu “Mathematical investigation of a combustible viscoelastic material in a cylindrical stockpile with oxygen (O_2) consumption and induced electric field” **Journal:** Numerical Heat Transfer, Part B: Fundamentals, Vol. (2023), pp. 1-21.

2023: IM Wangari, S Olaniyi, **RS Lebelo**, KO Okosun “Transmission of COVID-19 in the presence of single-dose and double-dose vaccines with hesitancy: mathematical modeling and optimal control analysis” **Journal:** Frontiers in Applied Mathematics and Statistics, Vol. (2023), pp. 1-29.

2024: KC Moloi, **RS Lebelo**, KP Dzvimbo, I Etbaigha, "Knowledge Management and Learning Organisation Interrelationship Towards Organisational Productivity: University of Technology, South Africa" **Journal:** Gorteria, Vol. 64(3), pp. 1-19.

2024: TA Adeosun, SO Adesanya, **RS Lebelo**, JC Ukaegbu "Mathematical analysis of a combustible viscoelastic material in a cylindrical channel taking into account induced electric field: A spectral approach" **Journal:** Nonlinear Engineering, Vol. (13), pp. 1-12.

2024: AO Adewumia, AA Aderogbaa, SO Akindeindeb, OO Fabelurina, **RS Lebelo** "Finite difference spectral collocation schemes for the solutions of boundary value problems" **Journal:** Heliyon, Vol. (10), pp. 1-15.

2024: SF Abimbade, FM Chuma, SO Sangoniyi, **RS Lebelo**, KO Okosun, S Olaniyi "Global Dynamics of a Social Hierarchy-Stratified Malaria Model: Insight from Fractional Calculus" **Journal:** Mathematics, Vol. 12(10):1593, pp. 1-19.

2024: SO Adesanya, AT Adeosun, **RS Lebelo**, CC Tisdel "Numerical investigation of reaction driven magneto-convective flow of Sisko fluid" **Journal:** Numerical Heat Transfer Applications Part A: Applications, pp. 1-14.

2024: AK Isabirye, KC Moloi, **RS Lebelo** "Enhancing Networking skills for Professional Success: Strategies and Tactics" **Journal:** Mitteilungen Klosterneuburg, Vol. 74(7), pp.1-35.

2024: AO Adewumia, SO Akindeinde, **RS Lebelo** "Computational Techniques for Accurate Solutions of Astrophysical Problems Using Transform-Based Collocation" **Journal:** International Journal of Applied Mathematics, Computational Science and Systems Engineering, Vol. 6, pp. 119-136.

2024: MH Langa, **RS Lebelo** "Revisiting Maslow's Theory – A Multi-Disciplinary Approach" **Journal:** Gorteria, Vol. 64(9), pp. 37-50.

2024: S Sebueng, MH Langa, **RS Lebelo** "Evaluation of Improved Transient Behaviour of Single Wire Earth Return under 22 kW Motor Starting Conditions" IV. International Conference on Electrical, Computer and Energy Technologies (ICECET 2024), 25-27 July 2024, Sydney-Australia, pp. 1-6.

2024: B Sibanda, **RS Lebelo**, RK Mahlobo "Investigating different answers to one Euclidean geometry problem: a case study of grade 12 mathematics examinations in South African secondary schools" **Journal:** Edelweiss Applied Science and Technology, Vol. 8(6), pp. 2931-2936.

2024: RK Mahlobo, B Sibanda, **RS Lebelo** "Analysing Marking Memorandum as an Aspect of Assessment in Mathematics Performance of South African High Schools" In book: Third Symposium Proceedings. New Ways of Teaching and Learning. Aemilia Hotel, Bologna, Italy. August 6-10, 2024.

2024: KC Moloi, AK Isabirye, **RS Lebelo** "Can implementing the Balanced Scorecard enhance strategic management performance at one South African University of Technology? A theoretical perspective" **Journal:** Mitteilungen Klosterneuburg, Vol. 74(10), pp. 1-20.

2024: KC Moloi, **RS Lebelo**, AK Isabirye, et al. "The Reflective Journal as a Pedagogic and Assessment Tool in Higher Education" **Journal:** Interciencia, Vol. 49(9), pp. 19-53.

2024: KC Moloi, **RS Lebelo**, AK Isabirye, MFZ Moloi "Students' Challenges in an E-learning Setting at a University of Technology in South Africa" **Journal:** Revista de Educación (Madrid), Vol. 405(8), pp. 54-81.

2024: V Nolting, **RS Lebelo**, "A Relativistic Electron Investigation in an Electromagnetic Field." **Journal:** Kasmera, Vol. 55(2), pp. 19-27.

2025: AK Isabirye, KC Moloi, **RS Lebelo**, et al., "The Scholarly Notebook: A Qualitative Investigation of Students' Academic Journaling Practices in Higher Education." **Journal:** Revista de Educacion (Madrid), Vol. 407(1), pp. 2-30.

2025: S Olaniyi, FM Chuma, **RS Lebelo**, RC Ogbonna, SF Abimbade, "Modelling epidemiological dynamics with pseudo-recovery via fractional-order derivative operator and optimal control measures" **Journal:** PLOS One, Vol. 20(1), pp 1-24.

2025: PO Banjo, **RS Lebelo**, SO Adesanya, EI Unuabonah, "Energy Efficacy Enhancement in a Reactive Couple-Stress Fluid Induced by Electrokinetics and Pressure Gradient with Variable Fluid Properties" **Journal:** Mathematics (MDPI), Vol. 13(615), pp 1-21.

2025: KC Moloi, AK Isabirye, **RS Lebelo**. "Rethinking teaching and learning at one university of technology in the context of the knowledge economy: A theoretical perspective." **Journal:** International Journal of Innovative Research and Scientific Studies, Vol. 8(1), pp. 2866-2875.

2025: AK Isabirye, KC Moloi, **RS Lebelo**, "Transformative learning in the PGDHE programme at one university of technology in South Africa: A Theoretical perspective." **Journal:** Multidisciplinary Science Journal, Vol. 7(9), pp. 1-14.

2025: NL Kaeane, RT Molokomme, **RS Lebelo**, "Exploring the Effectiveness and Challenges of Online Learning Tools Used by Students at a Higher Education Institutions in South Africa." **Journal:** Gorteria, Vol. 63(5), pp. 1-21.

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2025: AK Isabirye, KC Moloi, **RS Lebelo**, "Balancing Rigour and Compassion: The Ideal Formula for Organizational Excellence." **Journal:** Revista de Educacion, Vol. 407(3), pp.79-106.

2025: AK Isabirye, KC Moloi, **RS Lebelo**, S Khan, "Cultivating Creativity and Innovation in the School Curriculum for the 21st Century: Opportunities and Challenges." **Journal:** Ecohumanism, Vol. 4(3), pp. 334 – 348.

2025: JA Ademosu , S Olaniyi, SF Abimbade, FM Chuma, RC Ogbonna, **RS Lebelo** KO Okosun, "Modelling Population Dynamics of Substance Abuse in the Presence of Addicted Immigrant With Real Data of Rehabilitation Cases." **Journal:** Journal of Applied Mathematics, Vol. 2025(1), 2241780, pp. 1 – 17.

2025: S Olaniyi, IA Lawal, **RS Lebelo**, FM Chuma, SF Abimbade, "Modelling and Optimal Control of Influenza Dynamics with Structured Populations Based on Education and Isolation." **Journal:** International Journal of Analysis and Applications, Vol. 23(81), pp. 1 – 29.

2025: BE Njor, **RS Lebelo**, SO Adesanya, "Irreversibility Analysis of Hydromagnetic Casson Fluid Flow Through an Inclined Channel with Isothermal Boundary Conditions." **Journal:** Mathematics (MDPI), Vol. 13(1208), pp. 1 – 13.

2025: S Olaniyi, SF Abimbade, JA Ademosu, RC Ogbonna, **RS Lebelo**, KO Okosun, "Impact of Optimal Intervention Strategies on Psychoactive Substance Abuse Dynamics With Addicted Immigrants: A Mathematical Study." **Journal:** Complexity 2025(1), pp. 1 – 15.

2025: PO Banjo, **RS Lebelo**, SO Adesanya, EI Unuabonah, “Second-law analysis of reactive electroosmotic flow of couple-stress fluids with temperature-dependent properties and two-step chemical reactions” **Journal:** Alexandria Engineering Journal, Vol. 129, pp. 441–457.

2025: **RS Lebelo**, T Zuva, “Convective and Radiative Heat Transfer Analysis in a Three-Step Exothermic Chemical Reaction: Case Study—Methane Combustion” **Journal:** International Journal of Mathematics and Mathematical Sciences, Vol. 2025, pp. 1–10.

2025: SO Adesanya, AS Onanaye, **RS Lebelo**, “Influence of Reaction Kinetics on Magneto-Convective Flow Through Poro-Elastic Media with Nonlinear Thermal Radiation and Buoyancy Effects” **Journal:** Contemporary Mathematics, Vol. 6(5), 2025, pp. 7166-80.

2025: **RS Lebelo**, HM Langa, SO Adesanya, NL Kaeane, “Analysis of temperature increase impact on oxygen depletion” **Journal:** International Journal of Innovative Research and Scientific Studies, Vol. 8(7), 2025, pp. 405-417

2025: **RS Lebelo**, SO Adesanya, AS Onanaye, “Transient Heat Analysis of a Four-Step Radiative and Convective Kerosene Combustion” **Journal:** Gradiva, Vol. 11(10), 2025, pp. 42-48.

2025: AK Isabirye, LZ Mkhabela, KC Moloi, **RS Lebelo**, “Leadership Learning: A Mechanism to Enhance Performance Among Municipal Leaders in the Bushbuckridge Municipality” **Journal:** Baltica, Vol. 38(10), 2025, pp. 26-49.

2025: B Sibanda, **RS Lebelo**, “Comparing Online and Face-to-Face Mathematics Examination Results of Students in a Particular University in South Africa: A Case Study” **Journal:** Interciencia, Vol. 50(10), pp. 51-60.

2025: **RS Lebelo**, SO Adesanya, AT Adeosun, TA Yusuf, SO Akindeinde “Heat Transfer Intensity Analysis in Varied Combustion Reaction Mechanism Steps.” **Journal:** JZU Natural Science, Vol. 56(11), pp. 39-50.

2025: **RS Lebelo**, B Sibanda, N Mkhumbeni, “Steady-state heat transit investigation in a radiative cylindrical pipe of reactive materials.” **Journal:** Edelweiss Applied Science and Technology, Vol. 9 (11), pp. 289-301

13. ACADEMIC BOOK PUBLICATIONS

2017: Mathematics for Engineering Students (**Textbook**)
Authors: RS Lebelo, RK Mahlobo
ISBN: 9781485122326
Publisher: Juta & Company (Pty) Ltd

2017: Mathematical Approach to Transient Heat Analysis
Author: RS Lebelo
ISBN: 978-3-330-03882-0
Publisher: Lambert Academic Publishing.

2021: International Journal of Engineering Research in Africa Vol. 55
Journal: International Journal of Engineering Research in Africa
Editors: RS Lebelo, FV Adams, OSI Fayomi
ISBN: 9783035717082
Publisher: Trans Tech Publications Ltd

2023: Modelling and Numerical Simulations with Differential Equations in Mathematical Biology, Medicine and the Environment

Journal: Frontiers in Applied Mathematics and Statistics

Editors: AR Appadu, RS Lebelo, HH Gidey, B Inan

ISBN: 978-2-83251-825-0

Publisher: Frontiers in Applied Mathematics and Statistics |
www.frontiersin.org

2024: Modelling and Numerical Simulations with Differential Equations in Mathematical Biology, Medicine and the Environment: Volume II

Journal: Frontiers in Applied Mathematics and Statistics

Editors: AR Appadu, RS Lebelo, HH Gidey, B Inan

ISBN: 2297-4687

Publisher: Frontiers in Applied Mathematics and Statistics |
www.frontiersin.org

2024: Analysis and Applications of Mathematical Fluid Dynamics

Journal: Mathematics MDPI

Editor: RS Lebelo

ISBN: 978-3-7258-0753-6

Publisher: mdpi.com/journal/mathematics

14. NON-ACADEMIC BOOK PUBLICATION

2013: Suffer with Christ (Solly Lebelo)

ISBN: 978-1-4836-6118-6

Publisher: Xlibris Publishing

2023: The Real You

ISBN: 978-6204187167

Publisher: Blessed Hope Publishing

AWARDS AND ACHIEVEMENTS

2025: Research Excellence Award (Research Productivity)

2022: (National Research Foundation) NRF Rating: C2

2020: Joint 1st Place in Faculty Research Awards (Excellence Category)

2019: 1st Prize Faculty Research Achievement Award (VUT)

2017: NRF Grant-Knowledge Interchange and Collaboration (KIC) (2017)

2016: Int. Association of Advanced Materials (IAAM) Scientist Medal

AAMC2016 Award

2008: 2nd Best Presenter Prize SAMS2008 Award

HOBBIES

Music: Writing Songs and Playing Organ and Guitar

Reading and Writing Books

Sports: Cricket, Soccer & Softball

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