

## Message from the Chair of Department Prof IE Davidson

Welcome to 2021 academic session at DUT and congratulations to the Power Digest Team for successfully publishing 5 issues during 2020. It is recognized that every facet of our human development is woven around a sound and stable energy supply regime. The two notable trends in the industry are: grid-integration of renewable energy using smart technologies, and modernization of the traditional electric power grid (smart grids and micro-grids). In 2021, the plan is to advance and upscale the activities of the Centre of Excellence in Smart Grid at DUT, Smart Grid Innovation for Smart Intelligent Cities”, and adaptation of artificial intelligence tools and applications in electrical power and energy systems. Wishing you a fabulous and very productive 2021.



## New Academic Staff Member

### New Academic Staff Member, Electrical Power Engineering



**Ms. Thokolize F. Mazibuko** obtained the National Diploma in Engineering (Electrical) in 2008 from Durban University of Technology. She served as a Tutor/Students Assistant at DUT in 2006-7, and as Engineering Trainee at Anglo Platinum, 2007-8. She joined Anglo American/Hatch in Rustenburg as Planner Assistant and Quality Control Coordinator from 2008-9. She obtained a Bachelor of Technology (Electrical) from Tshwane University of Technology (TUT) in 2011. From 2013-4, she pursued the Masters degree in Electrical Engineering from TUT and RWTH Aachen University, Germany, conducting research and implementation of real-time platform: namely, the application of PTP synchronised PMUs in power system small signal stability, transient stability analysis of a multi-machine system based on synchro-phasors, and awarded the Master’s degree (Cum Laude) from TUT. She was with CSIR until 2016, and joined Rand Water, Johannesburg in 2017-8. She was employed as a Lecturer at University of Johannesburg, 2018-2020, and joined DUT in January 2021 as a Lecturer and studying towards the Doctor of Engineering degree at DUT. She has been an external examiner and moderator in the Department of Electrical Engineering, UNISA. Her research interests are in Smart Micro-Grids; protection, control and power quality. She teaches courses in Power Electronics and Electrical Protection in the BEng Tech program at the Department of Electrical Power Engineering.

## Post-Doctoral Fellow

### New Post-Doctoral Research Fellow, Electrical Power Engineering: Dr. Patrobers Simiyu.



**Dr. Patrobers Simiyu** received a Bachelor of Technology Education degree, major in Electrical and Electronic Engineering Technology, Moi University (MU), Kenya, 2004. He obtained an MSc in Energy Technology from Jomo Kenyatta University of Agriculture & Technology (JKUAT), Kenya in 2016. He served as Tutor, Dept. of Electrical and Electronic Engineering, Kenya-Coast National Polytechnic from 2008-2015. From 2015-2020, he was at North China Electric Power University (NCEPU), Beijing where he obtained a Doctor of Engineering degree specializing in Power Systems Automation. Since September 2020, he has been undertaking a Post-Doctoral Research Fellowship at Durban University of Technology (DUT) Department of Electrical Power Engineering. His research focus is Modelling and Control of Flexible Energy Networks including Modern Electric Railway Traction Power Systems and Power System Stability.

## Durban University of Technology to host SAUPEC/ROBMECH/PRASA 2022



SAUPEC/RobMech/PRASA 2021 is a flagship Southern Africa regional conference incorporating the 29<sup>th</sup> Southern African Universities Power Engineering Conference, the 13<sup>th</sup> Robotics and Mechatronics Conference of South Africa and the 31<sup>st</sup> Annual Symposium of the Pattern Recognition Association of South Africa. It brings together experts from the industry, academics and students in engineering, computer science, pattern recognition, robotics and mechatronics to present research papers, network, and expand the fraternity that has been built as part of the SAUPEC, RobMech, and PRASA legacies over the last three decades. The 2021<sup>st</sup> edition of the conference was hosted by the School of Electrical, Electronic and Computer Engineering of the North-West University, in conjunction with the South African Institute of Electrical Engineers (SAIEE), from 27 – 28 January 2021. At the 2021 edition of the SAUPEC/ ROBMECH/ PRASA Conference, Durban University of Technology Researchers accounted for 18% or 11 out of the 61 technical papers accepted out of 154 submitted papers. At least two reviewers rigorously assessed full papers. Papers accepted for presentation by the review panel were presented at the conference. The proceedings will be published in IEEE Xplore.

**DUT was nominated to host the next SAUPEC/ROBMECH/PRASA Conference holding in January 2022.** The SAUPEC/RobMech/PRASA 2022 will incorporate the 30<sup>th</sup> Southern African Universities Power Engineering Conference, the 14<sup>th</sup> Robotics and Mechatronics Conference of South Africa, and the 32<sup>nd</sup> Annual Symposium of the Pattern Recognition Association of South Africa. This IEEE conference will be hosted by DUT's Department of Electrical Power Engineering, under the General Chair, Prof IE Davidson, in conjunction with South African Institute of Electrical Engineers (SAIEE) and other industries and partners. SAUPEC/ ROBMECH/ PRASA became an IEEE accredited conference in 2019 and the proceedings of the conference have since been published on the IEEE digital explore library. Since becoming an IEEE conference, universities such as: CUT, UCT and NWU have hosted it in 2019, 2020 and 2021 respectively. This event promises to uplift DUT's international standing and further galvanize research in DUT, as researchers make their contributions to the 2022 edition hosted by DUT. IEEE Journals and Proceedings are DHET accredited.

<https://www.dut.ac.za/dut-is-gearing-up-to-host-the-next-saupecrobmechprasa-conference/>

## Peer-Reviewed Conference Papers

- [1] **Bheki Madonsela, Innocent Davidson** and Chrispin Mulangu, "The Influence of the Signal Distortions on the Satellite Based Navigation Systems". In *Proceedings of SAUPEC/RobMech/PRASA 2021 Conference*, North West University, South Africa, 27 – 28 January 2021.
- [2] **Vasu Chetty, Innocent Davidson** and **Gulshan Sharma**, "The Recent Trend of Increasing Fault Current Levels and Mitigation Measures". In *Proceedings of SAUPEC/RobMech/PRASA 2021 Conference*, North West University, South Africa, 27 – 28 January 2021.
- [3] **Sanjeeth Sewchurran** and **Innocent Davidson**, "Financial Feasibility of Solar PV within eThekweni Municipality - Residential Customers". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [4] **Sanjeeth Sewchurran** and **Innocent Davidson**, "Why Solar PV is Such a Lucrative Option for South African Municipal Customers". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [5] **Sanjeeth Sewchurran** and **Innocent Davidson**, "Financial Feasibility of Solar PV within eThekweni Municipality - Business Customers". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [6] Nomhle Loji, **Kabulo Loji**, Remy Tiako, **Innocent Davidson** and **Kayode Akindeji**, "Loadability Assessment of a Photovoltaic Penetrated Grid to Offset Intermittency and Reduce Total losses using Battery Energy Storage System". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [7] **Ramesh Behara, Evans Ojo** and **Timothy Kayode Akindeji**, "The Investigations of the Impacts of the Integration of Wind Energy into Distribution Network". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [8] **Namhla Mtukushe** and **Evans Ojo**, "The Study of Electrical Power Generation from Tidal Energy in South Africa". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [9] Prenushka Ayar, Olatunji Akinrinde and **Evans Ojo**, "Investigation and mitigation of temporary overvoltage caused by harmonic filters in an oil refinery". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [10] Anuoluwapo Aluko, David Dorrell, R. Pillay Carpanen, and **Evans E. Ojo**, "Vulnerability Analysis of False Data Injection Attacks on the Frequency Stability of Isolated Microgrids. In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [11] Adeniyi Onaolapo, David Dorrell, and **Evans E. Ojo**, "A comparative Evaluation of Conventional and Computational Intelligence Techniques for Forecasting Electricity Outage". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.
- [12] **Sindisiwe Malanda** and **Innocent Davidson**, "Modeling and Simulation of Radial-Grid Topology Based on Multi-Terminal VSC-HVDC System". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.

## Posters

- [1] Musawenkosi Zulu, Olatunji Akinrinde and **Evans Ojo**, "Power Flow and Fault Analysis in a Hybrid DC Microgrid". In proceedings of *SAIPEC/RobMech/PRASA 2021 Conference*, 27 – 28 January 2021, North West, South Africa.

Events and Announcements	Upcoming Conferences
<b>Departmental Research Committee (DRC)</b> <b>05 March 2021</b> <b>31 March 2021</b>  <b>Faculty Research Committee (FRC)</b> <b>23 March 2021</b> <b>19 April 2021</b>	<b>9th AFRICON conference, 13-15 September 2021, Arusha, Tanzania</b> <i>(Submission deadline: April 16, 2021)</i>  <b>IEEE PES &amp; IAS Power Africa Conference, 23-27 August 2021</b> <i>(Extended paper submission deadline – 31 March 2021)</i>  <b>NEIS Conference, 13 – 14 September 2021, Hamburg-Schmidt-University, Germany</b> <i>(Abstract submission deadline – 1 April 2021)</i>

## CORONAVIRUS (COVID-19) Safety Advice & Tips

### Prevention



Wash hands with water, soap/sanitizer at least 20 seconds



Avoid contact with sick people



Don't touch eyes, nose or mouth with unwashed hands



Do not share eating utensils or food



If you show symptoms, seek medical care immediately

### Symptoms



Fever



Cough



Shortness of breath



Sore throat



Headache

### If you are not feeling well:



Stay at home



Put tissues in the trash and wash hands



Avoid contact with others



Keep objects and surfaces clean



Cover your nose & mouth with tissue or elbow when sneezing

## EDITORS



**Ms. Namhla Mtikushe**  
namhla@dut.ac.za



**Ms. Sindisiwe Malanda**  
SindisiweM7@dut.ac.za