



NITheP Colloquium Monday, 15 March 2021, 16h00

Prof Oluwole Daniel Makinde | Faculty of Military Science, Stellenbosch University

“Nanofluid Dynamics and Its Engineering Cooling Applications”



Accumulation of internal heat generation within engineering and industrial devices during operation has constituted a major impediment to product's reliability and performance, and thus creating the essential need for thermal management in all devices. The recent advent of nanotechnology has led to the invention of innovative thermal management technologies known as nanofluids to improve the system performance and reliability by removing high heat flux generated in the engineering and industrial devices. This study examines the impact magnetic field on the heat transfer enhancement capability of an electrically conducting water-based nanofluid flows over a convectively heated slippery sheet. The nonlinear model equations are obtained, analysed and solved numerically via shooting technique with the Runge-Kutta-Fehlberg integration scheme. The influence of embedded thermophysical parameters on the overall flow structure and the thermal management mechanism are displayed graphically and discussed.

References or <https://bit.ly/3I2AM3I>

BIOGRAPHY

Oluwole Daniel Makinde is a Professor of Applied and Computational Mathematics at the Faculty of Military Science, Stellenbosch University, South Africa. He already worked as a Senior Professor & Chair of Postgraduate Studies at CPUT, South Africa (2008–2013) and Professor & Head of the Applied Mathematics discipline at the University of Limpopo, South Africa (1998–2008). His research covers three broad areas-namely: Fluid Mechanics, Mathematical Biology and Computational Mathematics. He authored 4 Applied Mathematics Textbooks & monographs, edited 8 Advanced Research Textbooks on Heat Transfer in Fluids & Solids and published over 500 research papers in reputable journals. He has supervised over 37 PhDs, 73 MSc and 200 BSc (Hons) candidates in the field of Applied Mathematics and Computations across the African continent. His present research H-Index = 60 according to Google Scholar with over 15495 citations. He received several distinctions, fellowships, prizes and awards. These include: South African NRF/NSTF 2009/2010 T.W. Kambule Senior Researcher Award; 2011 edition African Union Kwame Nkrumah Continental Scientific Award; Research Scientist Award at University of Limpopo (1999-2007); Research Scientist award at CPUT (2008-2012), Research Scientist Award at SU-Military Academy (2016-2019); 2014 Nigerian National Honour Award titled the Member of the Order of the Federal Republic (MFR); African Academy of Sciences (AAS) Fellowship Award (2012); International Academy of Physical Sciences (IAPS) Fellowship Award (2018). Prof Makinde served as the Secretary General - African Mathematical Union (2009–2017), General Secretary - Southern African Mathematical Sciences Association (2002–2006), editorial board member and reviewer of several reputable journals.

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