

**Dr Regina Maphanga**  
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Regina Maphanga is a Principal Researcher and Research Group Leader of Design and Optimisation Research Group at the Next Generation Enterprises and Institutions Cluster of the Council for Scientific and Industrial Research (CSIR) in South Africa. She is a Domain Leader of the Department of Science and Innovation Foundational Digital Capability Research Platform - Modelling and Simulation Domain.

Her research interests are focused on developing and applying mathematical, computational and machine learning systems and tools, to enable effective decision-making that informs design and optimisation of integrated and complex systems. Thus, she applies multiscale multi-physics and data-driven modelling and simulation techniques to accelerate design and development of materials, products, and processes; optimise processes and materials properties; and effective decision making.

Prior to joining CSIR she was an Associate Professor of Physics at the University of Limpopo, SA and now a Research Associate. Previously, she was appointed as a Junior Associate at the Abdus Salam International Centre for Theoretical Physics in Italy. Currently, she is appointed as an Associate at the National Institute for Theoretical and Computational Sciences. She is an alumni member of South African Young Academy of Science and Global Young Academy – the voice of the young scientists around the world. As part of community service, Regina is an Honorary Secretary and Executive Council Member for South African Institute of Physics, a member for C20 Commission on Computational Physics of International Union of Pure and Applied Physics (IUPAP), International Advisory Board Member of IUPAP Conference on Computational Physics, amongst many others.

Regina has been invited to participate in various young scientists' programmes, such as World Economic Forum Young Scientist and BRICS Young Scientists Forum. She received distinguished awards for her outstanding contribution in Science, Engineering and Technology in South Africa. She continuously makes contributions to several programmes on teaching physics and promotion of public understanding of science, engineering and technology in SA. She is passionate about science communication and previously contributed science communication essays for Science Magazine of American Association for the Advancement of Science.