

Dr Mkhulu Mathe: Electrochemical Energy Storage

SUMMARY

Energy Champion and Strategy Leader for Research Strategy and Government Policy development for Departments of Science and Technology (DST), Trade and Industry (dti), Industrial Development Corporation (IDC) in South Africa. Energy and Utilities experience includes Solar Research, Nanotechnology for Hydrogen Storage, Electrocatalysis in Fuel Cells and Li-ion Battery Storage technologies for Renewable Energy and Electric Vehicles.

Goals: Collaborate with global leaders in Energy and Utilities to -
Provide insights to develop strategies and policies for energy in South Africa.
Develop and implement energy technology solutions in the South African market place.

Specialties: Visionary Leadership, Key Partnership Development, Strategy Development, Policy Development, Negotiations, Budget Planning, Media communications (Prolific Author, Speaker and Interviewer)

Current: Senior Manager with 20 years of experience in the field of Chemistry and Energy Research, Development and Innovation. Well-travelled researcher, strategist and speaker at local and global conferences

LANGUAGES

Zulu (Full professional proficiency), **Sotho, Southern** (Full professional proficiency), **Xhosa** (Full professional proficiency), **Afrikaans** (Professional working proficiency), **German** (Elementary proficiency), **Tswana** (Elementary proficiency), **Northern Sotho** (Elementary proficiency) and **English** (Full professional proficiency)

SKILLS & EXPERTISE

Strategy Development, Policy, Renewable Energy , Energy , Science, Research, Analysis, Negotiation, Budgeting, Data Analysis, Problem Solving, Strategic Planning, Teaching, Business Planning, Business Strategy ,Strategy Leadership, Risk Management, Management, Nanotechnology, Project Planning, Chemistry, Project Management, Materials Science, Program Management, Management Consulting, Team Leadership, Budgets, R&D, Physics, Technology Transfer Change Management, Analytical Chemistry, Commercialization, Innovation Management, Government, Process Engineering, Materials, Sustainability, Chemical Engineering, Polymers, Spectroscopy, Life sciences, Simulations, Laboratory, Thin Films, Manufacturing, Organic Chemistry, Fuel Cells and Process Simulation

AREAS OF INTEREST

Electrochemical Energy Storage, the Hydrogen Economy, Fuel Cells and Nanotechnology, Strategy, Leadership and Policy

PROFESSIONAL EXPERIENCE

Council for Scientific and Industrial Research (CSIR), Energy Materials (EM) competence area (January 2005 – Present)

The Council for Scientific and Industrial Research (CSIR) is South Africa's central and premier scientific research and development organisation. It was established by an act of parliament in 1945 and is situated on its own campus in the city of Pretoria. It is the largest research and development (R&D) organisation in Africa and accounts for about 10% of the entire African R&D budget. It has a staff of approximately 3,000 technical and scientific researchers, often working in multi-disciplinary teams. [Wikipedia](#)

Competence Area Manager – Pretoria, South Africa (January 2007-Present)

The Energy Materials has more than 50% of its employees as PhD graduates. We are responsible for a budget over R20 million.

Key Responsibilities and Accountabilities:

- Recruitment of team members with shared value systems of: excellence, integrity, honesty, trust among others
- Offer management operations leadership from proposal generation to contract delivery
- Contribute towards the development of our divisional strategies, scientific outputs and financial sustainability
- The position reports to the Executive Director who in turn reports to the Group Executive R&D.

Key Achievements:

- Succeeded to launch the hydrogen infrastructure projects at the CSIR under the Hydrogen South Africa with an estimated amount R400 million
- Contributed to the re-start of battery research at the CSIR and also nationwide, as part of the core working group.
- A sustained contribution to scientific outputs and patents.

Postdoctoral Research Associate – Athens, Georgia (January 2004-December 2004)

The University of Georgia is an American land-grant university, sea grant, and space grant Research University with its primary campus located on a 759-acre campus in Athens, Georgia, USA. It is the Flagship University of the State of Georgia. [Wikipedia](#)

Key Responsibilities and Accountabilities:

- Responsible for the efficient running of Analytical Chemistry and waste management laboratory operations.
- Led the research and managed new graduate students in the John Stickney Research group.

Key achievements:

- Developed a good waste management system
- Trained students on the Atomic Force Microscopy (AFM)
- Initiated projects on the electrodeposition of mercury compounds

PhD Research Assistant (August 1998 – December 2003)

The University of Georgia is an American land-grant university, sea grant, and space grant Research University with its primary campus located on a 759-acre campus in Athens, Georgia, USA. It is the Flagship University of the State of Georgia. [Wikipedia](#)

- Taught an Analytical and General Chemistry classes
- Received an award for Outstanding Research Assistant in 2000

MSc Student and Junior Lecturer – Umtata, Eastern Cape (January 1994- July 1998)
University of Transkei (since 2005 part of [Walter Sisulu University for Technology and Science](#)) was situated in the former [Transkei](#) region of South Africa. It started as a branch of the [University of Fort Hare](#), and after the independence of the Transkei in 1977 (which lasted until 1994, when it was re-integrated with the Republic of South Africa at the end of [Apartheid](#)), it became the University of Transkei. [Wikipedia](#)

Key contributions:

- Tutored General Chemistry and taught an Inorganic chemistry class section
- Contributed towards the establishment and launch of the first community radio at the University of Transkei, for which one became its first Manager. Recruited and trained announcers; led UCR-FM to be among the first station to broadcast 24hrs

Mathematics and Science Teacher – Free State, South Africa

- Mamellang-Thuto Secondary School, Bothaville, **January 1992 – December 1993**
- Kananelo Senior Secondary School, Kroonstad, **January – December 1991**
- Phofung Secondary School, Qwa-qwa, **October 1988 – December 1988**
- Kananelo Senior Secondary School, Kroonstad, **January 1985 – May 1986**
**The subjects taught were: Mathematics, Biology and Physical Science*

EDUCATION, TRAINING AND CERTIFICATIONS

How to become a Director: IoDSA (2014)

IoDSA, Sandton, Johannesburg

Executive Development Program (EDP) (2010)

University of Stellenbosch Business School at Cape Town

Management Advanced Program (MAP) (2007)

Wits Business School at Johannesburg

PhD Analytical Chemistry/ Electrochemistry (2003)

The University of Georgia at Athens, GA, USA

MSc Physical Chemistry (1998)

University of Transkei (now Walter Sisulu University at Umtata)

BSc Chemistry (1988)

Elmira College, Elmira, NY, USA

PUBLICATIONS, HONOURS AND AWARDS

HONORS AND AWARDS

MSM Management Excellence Award for Dr M.K. Mathe, 2012
MSM Director's Team Award, For Growth and Impact Strategies, 2012
Best Poster for Energy Research – International Conference of Advanced Materials – December 2010, South Africa
Best Poster for Energy Research – CSIR Annual Conference – 2009, South Africa
MSM Leadership Team Award, 2008
Ken Whitten Excellence for Teaching (April 2000) - The University of Georgia, Athens, GA,
Rhodes University, Eastern Cape SACI regional meeting, 1996 – a bronze medal recipient for best student presentation,
Aurora Associates Scholar, June 1986 – July 1988, for studies at Elmira College, Elmira, NY

PUBLICATIONS SUMMARY

1 X Book Chapter
30 X Peer reviewed publications
5 X Proceedings Publications
59 X Presentations including 1 X Plenary (International Conference) and 2 X Keynote locally and abroad

