

## **Nicholas Musyoka, Ph.D.**



### Professional Bio

2020-To date: Research Group Leader & Principal Research Scientist, Council for Scientific and Industrial Research (CSIR), South Africa

2016-2020: Senior Research Scientist, Council for Scientific and Industrial Research (CSIR), South Africa

2013-2016: Post-doctoral Reseacher, Council for Scientific and Industrial Research (CSIR), South Africa

2018-2020: Research Associate (Applied Chemistry), University of Johannesburg, South Africa

2021-2023: International Research affiliate at Sabanci University Nanotechnology Research and Application Center (SUNUM), Turkey

2021-2023: Affiliate of the African Academy of Sciences (AAS), Kenya

2020-2022: Future Leaders – African Independent Research (FLAIR) Fellow

### Academic bio

2021-To date: MSc. Technology and Innovation Management (MTIM), University of Pretoria, South Africa

2010-2012: Ph.D. (Chemistry), University of the Western Cape, South Africa

2008-2009: MSc (Chemistry), University of the Western Cape, South Africa

2001 -2006: BSc (Chemistry), University of Nairobi, Kenya.

## **Carbon Capture and Utilisation (CCU) research activities at the South Africa's Council for Scientific and Industrial Research (CSIR)**

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The need for global decarbonisation demands an energy mix with a significant shift from fossil fuels to renewables. However, Carbon Capture, Utilization and Storage (CCUS), as a strategy for stopping carbon dioxide (CO<sub>2</sub>) from reaching the atmosphere, can not be ignored since it enables the cleaning up of the stubborn emissions that renewables struggle to reach. This talk will focus on Research, Development & Innovation (RD&I) activities related to CCU at the CSIR. Some of the active projects are; biogas cleaning and upgrading to biomethane, carbon dioxide (CO<sub>2</sub>) hydrogenation to produce green methanol, CO<sub>2</sub> capture and separation, cracking of methane and biomethane into hydrogen and high-value solid carbons. The presentation will also highlight how the CCU platform integrates with projects undertaken under the Hydrogen South Africa (HySA) Infrastructure Centre of Competence. The HySA Infrastructure projects are linked to Hydrogen Production, Storage and Delivery.