

**Session Program**

**16–19 Dec 2024**

**12th International Conference of the African Materials  
Research Society (AMRS)**

***WATER\_Sanit\_Env***

# Monday 16 December

11:10

## WATER\_Sanit\_Env: PARALLEL

Session | Conveners: Prof. Nadine Kabengi, Eric Borguet

11:10–11:30

### Translating Molecular Science to Practical Application in Natural and Engineered Water Systems

Speaker

Lynn Katz

11:30–11:50

### Piezocatalysis: Harnessing the piezoelectric properties of catalysts using mechanical energy to enhance catalytic reactions

Speaker

Prof. Alain PIGNOLET

11:50–12:10

### Graphene-based sorbents and membranes for water nanofiltration

Speaker

Prof. Giovanni FANCHINI

12:10–12:30

### NO<sub>x</sub> decomposition and CO<sub>2</sub> upgrading using Ni- And Fe-loaded biocarbon catalysts

Speaker

Ange Nzihou

12:30–12:45

### DEVELOPMENT OF SILVER OXIDE-TITANIUM (IV) OXIDE-NANOCCLAY BASED FILTER FOR MINING WASTEWATER TREATMENT

Speaker

Saka Abdulkareem

12:45–13:00

### Materials for environment, water and sanitation

Speaker

Divin IRAKOMEYE

13:00

14:00

## WATER\_Sanit\_Env: PARALLEL

Session | Conveners: Prof. Nadine Kabengi, Eric Borguet

14:00–14:20

### Nanomaterials by Design: Tailored Morphology for Environmental Challenges

Speaker

Prof. Elisa Moretti

14:20–14:35

### Graphene-activated carbon@biomass-based nanostructured materials for efficient solar steam generation and seawater desalination

Speaker

Dr Kholiswa Yokwana

14:35–14:50

### Determination of Leached Chemicals from End-Of-Life Tires Using EPA Methods

**Speaker**  
Zimako Onyeme

15:05–15:20

**Techno-Economic Assessment of Codigestion of Waste Activated Sludge with Food Waste for Enhanced Bioresource Recovery.**

**Speaker**  
Benton Otieno

15:20–15:35

**High-Capacity Adsorption of Hexavalent Chromium by a Polyaniline-Ni(0) Nanocomposite Adsorbent: Expanding The Langmuir-Hinshelwood Kinetic Model**

**Speaker**  
Hendrik Brink

15:35–15:50

**Kinetics and thermodynamics of the dissolution of mild steel in 1 M of hydrochloric acid solution in the presence of Polyethylene glycol L-proline (PEGLP) as environm**

**Speaker**  
Ms Nomsa Baloyi

15:50

16:20

## **WATER\_Sanit\_Env: PARALLEL**

Session

16:20–16:35

**PHOSPHATE ELECTROSORPTION USING LAYERED DOUBLE HYDROXIDES – CARBON COMPOSITES: ADSORPTION ISOTHERMS AND ENERGY RECOVERY STUDIES**

**Speaker**  
JOHN MMBAGA

16:35–16:50

**Lead Oxide-Modified Graphite Electrodes for Electrochemical Degradation of Congo Red Dye in Aqueous Solution**

**Speaker**  
Emmanuela Ohanele

16:50–17:05

**OPTIMISATION, ISOTHERMS, AND KINETICS OF MESOPOROUS SILICA DERIVED FROM COAL FLY ASH AS AN EFFECTIVE ADSORBENT FOR METHYLENE BLUE REMOVAL**

**Speaker**  
Mr THAPELO MANYEPEDZA

17:05–17:20

**Hydrolytic Crack Growth and Embrittlement in Poly(ethylene terephthalate)**

**Speaker**  
Atte Kadoma

17:20

## Tuesday 17 December

11:10

### WATER\_Sanit\_Env: PARALLEL

Session

11:10–11:25

**Metal dithiocarbamate complexes as precursors for metal sulphide nanophotocatalysts for organic dyes degradation**

Speaker

Peter Ajibade

11:25–11:40

**Purification of Waste PET Monomers Using Reactive Crystallization via Metal-Organic-Framework Intermediate**

Speaker

Abigail Nason

11:40–11:55

**Investigation of Polyaniline/Biochar Composite for Effective Cr(VI) Removal from Water**

Speaker

Ruth Kasavo

11:55–12:10

**Softening with Ceramic Micro-Filtration for Application on Water Reclamation for Industrial Recirculating Cooling Systems**

Speaker

Ms Noor Gulamussen

12:10–12:25

**Microplastics as a novel substrate for antimicrobial resistance: Effects of concentration, composition, and size on E. coli multidrug resistance**

Speaker

Neila Gross

12:25–12:40

**Investigation of the use of Botswana Coal Fly Ash as a material for the adsorption of arsenic from fortified water**

Speaker

Kedimetse Mothibedi

12:40–12:55

**PHOTOCATALYTIC WASTE WATER TREATMENT AND REUSE FOR DOMESTIC APPLICATIONS**

Speaker

Prof. FRANCIS NYONGESA

12:55

16:20

### WATER\_Sanit\_Env: PARALLEL

Session

16:20–16:35

**Development of magnetic Fe<sub>3</sub>O<sub>4</sub>-SiO<sub>2</sub>-Zr-GO nanocomposite for the remediation of Pb<sup>2+</sup> and Cd<sup>2+</sup> from wastewater**

**Speaker**  
Agnes Pholosi

16:35–16:50

**Electrochemical evaluation of synthesized environmentally friendly polymer composites as corrosion inhibitor for mild steel in 1 M hydrochloric acid.**

**Speaker**  
Prof. Mamookho Elizabeth Makhatha

16:50–17:05

**Assessing the Efficacy of Diatomaceous Earth Ceramic Filters for Purifying Water Contaminated with E. coli, Rotavirus, and Sodium Fluoride Using Blocking Filtration Models**

**Speaker**  
Dr Mary Taabu Simiyu

17:05–17:20

**COMPARATIVE ANALYSIS OF ACID REFLUXING AND ACID FUSION METHODS FOR PRETREATING FLY ASH IN ZEOLITE SYNTHESIS: The effective removal of Fe and Ca from coal fly ash.**

**Speaker**  
Emmanuel Gaolefufa

17:20