

Eric Masika

Kenyatta University, Department of Chemistry, P.O. Box 43844 – 00100 Nairobi, Kenya

Mobile : +254719370909(K) Email: masika.eric@ku.ac.ke Career Objectives:

Lecturer/Researcher at Kenyatta University with research interests on new types of nanostructured inorganic and carbonaceous porous solids for gas adsorption (for environmental remediation) and water purification. Also with a view of integration of Nanoscience and Nanotechnology in Kenya's educational curriculum coupled with fostering Industrial partnership for potential scale up. I have over a decade of professional teaching experience in secondary schools, possessing solid experience in school management and administration as a Head of Department for Science. My teaching/training areas at University level include modules in Physical Chemistry and Nanoscience/Nanotechnology (spearheading curriculum development).

Academic and Professional Qualifications:

2008-2012 PhD Chemistry; Fabrication of nanostructured porous inorganic and carbon materials for catalysis and gas storage applications at The University of Nottingham; Supervisor:-Prof. R. Mokaya FRSC.

During a multidisciplinary project I studied a novel class of porous nanostructured materials with tunable porosity for catalysis and gas storage applications. In particular, inorganic and carbonaceous materials at nanometre (10^{-9}) scale were prepared, fully characterized using a set of complementary analytical techniques.

2007-2008 MSc. Nanoscience (merit) from the University of Nottingham. Nanoscience is a highly Interdisciplinary course which combines modules and experiments from the schools of chemistry, physics, pharmacy and engineering. MSc Project supervised by Prof. M. Poliakoff CBE, FRS.

1998-1999 Post Graduate Diploma in Education (Credit); Moi University; Supervisor:- Project work supervised by Dr. J. Agak

1990-1995 Bachelor of Science, (Chemistry major) – 2:1; Jomo Kenyatta University of Agriculture & Technology.

Publications:

- **E. Masika** and R. Mokaya, 'Exceptional gravimetric and volumetric hydrogen storage for densified zeolite templated carbons with high mechanical stability', *Energy Environ. Sci.*, 2014, 7, 427 – 434.
- **E. Masika** and R. Mokaya, High surface area metal salt templated carbon aerogels via a simple subcritical drying route: Preparation and CO₂ uptake properties, *RSC Advances*, 2013, 3, 17677 - 17681.
- **E. Masika**, R. Bourne, T. Chamberlain and R. Mokaya, "Supercritical CO₂ mediated incorporation of Pd onto templated carbons: A route to optimising the Pd particle size and hydrogen uptake density", *ACS Applied Materials & Interfaces*, 2013, 5 (12), pp 5639 - 5647.
- **E. Masika** and R. Mokaya, "Preparation of ultrahigh surface area porous carbons templated using zeolite 13X for enhanced hydrogen storage", *Progress in Natural Science: Materials International*, 2013, 23(3), pp 308 - 316.
- **E. Masika** and R. Mokaya, "Hydrogen storage in high surface area carbons with identical surface area but different pore size: Direct demonstration of the effects of pore size", *Journal of Physical Chemistry C*, 2012, 116 (49), pp 25734 – 25740.
- **E. Masika** and R. Mokaya, 'Mesoporous Aluminosilicates from a Zeolite BEA Recipe', *Chemistry of Materials*, 2011, 23(9), pp 2491 - 2498.

Selected Conferences and Graduate Courses:

Graduate Courses:

- Intensive Learning and Teaching Programme (ILTP) Course in Higher Education Learning and Teaching with main focus on enhancement of skills for teachers and supporters of student learning; Venue:- The University of Nottingham; Dates:- 17th -22nd June 2011.
- Advanced presentation skills, skills for demonstrating in chemistry laboratories, marking and assessment for scientists and a practical look at core teaching skills.

Conferences and Workshops:

- **Eric Masika:** 1st Stakeholder's workshop to discuss the draft Policy on exploitation of Nanotechnology at Utalii hotel, Nairobi, Kenya on 16th January, 2014. (Attendance).
- **Eric Masika** and Robert Mokaya, 'TA Instruments - UK Materials Characterization seminar, University of Bradford, 13th and 14th September 2011 'Synthesis and Characterization of Pd-doped Zeolite Templated Carbons for Hydrogen Storage.'(Poster).
- **Eric Masika**, Richard Bourne, Thomas Chamberlain and Robert Mokaya, 34th Annual British Zeolite Association Conference, Edinburgh, 11 -13th April 2011, 'Supercritical CO2 mediated Incorporation of Palladium Nanoparticles into Zeolite Templated Carbons with enhanced Hydrogen Storage; (Presentation).
- **Eric Masika** and Robert Mokaya, 34th Annual British Zeolite Association Conference, Edinburgh, 11 - 13th April 2011. 'Mesoporous Aluminosilicates via Molecular Templating; (Poster).
- **Eric Masika** and Robert Mokaya, Driving innovation in Chemistry and Engineering Lectures, The University of Nottingham, 12th March 2010, 'Templating Routes to Nanostructured and Mesostructured Porous Materials;.(Presentation).
- **Eric Masika** and Robert Mokaya, 2010 Physical Chemistry Postgraduate Symposium, 9th July 2010. 'Synthesis and Characterization of Pd-doped Zeolite Templated Carbons for Hydrogen Storage; (Presentation).
- **Eric Masika** and Martyn Poliakoff, MSc. Nanoscience (2007/2008) Research day, The University of Nottingham, 21st August 2008;'The Supercritical Hydrothermal Synthesis of Metal Oxide Nanoparticles; (Presentation). **Fields**

of Expertise:

- Hydrothermal synthesis and Surface modification
- Chemical vapor deposition
- Supercritical fluids
- Powder X-rays
- diffraction
- Gas storage
- Electron Microscopy
- Thermal analysis
- Infrared Spectroscopy

Current Employment and Teaching Experience:

Lecturer/Researcher Kenyatta University, December 2013 - To Date

Currently teaching Physical Chemistry Modules in the Department of Chemistry: - Applied Electrochemistry, Chemical Thermodynamics and Introduction to Physical Chemistry I. I am also, involved in the supervision of Postgraduate students. My goal is to spearhead the development and integration of Nanoscience and Nanotechnology in the University curriculum at undergraduate level by next academic year. **Research Student**

Supervision:

Sigei Kipkirui Enock B.Ed (Sci) – REG No. 156/22808/2012

Topic: Low cost nanostructured silicon for high performance Li-ion battery anodes from rice husks (RH) **Other**

Responsibilities:

- Teaching Practice Supervisor since May 2014 to Date
- Committee Member – Departmental Secretariat since May 2014 to Date
- Committee Member – Departmental MSc Industrial Chemistry review committee since May 2014 to Date
- Mentor ; Kenyatta University Mentorship Programme since March 2014 to Date **Previous Employment**

Experience:

Postdoctoral Research Associate The University of Nottingham, November 2012 – November 2013

Developing protocols for optimized porosity modulation in nanostructured porous materials for multi-spectral magnetic resonance imaging (MRI) contrast agents, gas storage and catalysis applications. Administrative duties include group website management, ensuring that equipment's are safe and serviceable. Finally, teaching duties include contribution to the induction, supervision and support of PhD, MSc and fourth year project students. **2009 To 2013:- Students' mentor;** where I was responsible teaching literature and scientific communication skills to small groups of students.

2008 To 2012:- Undergraduate Laboratory Demonstrator; where I supervised first year students in laboratory skills, giving pre-lab talks, marking scripts and providing feed-back to students on their work. **2008 To 2013:-**

Student Ambassador; where I worked independently and/or teams by leading groups of prospective students on campus tours during open days, UCAS and onsite visits. I also, would regularly be asked to help train new ambassadors when they are recruited.

1997 To 2007:- Graduate Teacher 1; my duties and responsibilities as Head of department (science) included coordination of science curriculum implementation. I also prepared annual budget proposals for science department. My teaching subjects were chemistry and mathematics. In addition, I was contracted by Kenya National Examination Council (KNEC) as a national examiner in chemistry paper 2.

1995 To 1997:- Pharmacy Assistant; where my duties and responsibilities involved dispensing medication as well as liaising with pharmaceutical companies on new lines of medicines.

Awards/ Achievements:

- Postdoctoral Pump-priming project under EPSRC to investigate the physical concept underlying the hollow spheres contrast agents in Magnetic Resonance Imaging (MRI).
- Vice-Chancellor's Achievement Award for exemplary Student Ambassador.
- Extended Engineering and Physical Science Research Council (EPSRC) Award.
- School Marched Scholarship for PhD in Chemistry
- All Saints Educational Trust (ASET) for MSc Nanoscience.
- Burnside Rutherglen Church Bursary for BSc

Volunteering:

Number Partners Volunteering Community. The purpose of the project was to encourage children from "under represented" student groups to develop their understanding and love of math's by taking a new and innovative approach to learning.

Membership of scientific societies:

- Member:- Kenya Chemical Society since Jan 2014.
- Member:- British Zeolite Association since April 2011
- Committee Member:-The Royal Society of Chemistry East Midlands Section Trust; from November 2008 to March 2013.
- Associate Member:- Royal Society of Chemistry since September 2008
- Member:- Midlands Physics Alliance Graduate School since January 2008

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Referees:

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FRS Prof. Hudson

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