

Dr. Mohamed Ismail

1. **Name of Staff:** **Mohamed Ismail**
2. **Nationality:** Sudanese
3. **Years of Experience:** **11**
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Highlights

- **PhD** in Chemical and Environmental Engineering.
- UK International Libyan Company for Renewable Energy (**ILCRE**) **representative (July 2014- present)**.
- **Former director** of the Institute of Materials and Electronics (**MERI**), National Centre for Research (NCR), Khartoum, Sudan, **2007-2008**.
- **Head of Polymer Department in MERI, 2006-2007**.
- **Hold readily written research project**, which can be submitted for funding in **Saudia Arabia (ex for KACST)**, in collaboration with **UK**. Have written successful collaborative UK-Saudi bids.
- **Teaching and research experience (10 years; 1year in UK)**.

Profile

Skilled Academic and research Engineer with experience in advanced characterisation and processing of materials. Strengths include extensive experience in X-ray computed tomography, 3D imaging analysis and conventional/microwave heat treatments research.

Education and Qualifications

Ph.D., Chemical and Environmental Engineering **2009-2014**

The University of Nottingham, UK

Thesis title: An Investigation into the Use of Petroleum Coke as a Substitute for Metallurgical Coke.

Supervisors: Prof. Edward Lester & Prof. John W. Patrick

Research highlights:

- The aim of the research was to establish the possibility of utilizing petroleum coke as a replacement for metallurgical coke in blast furnace and/or foundries
- A wide range of traditional and advanced characterisations have been applied on petroleum coke as well as on traditional coke in order to produce the means of distinguishing between them. Conventional/microwave heat treatment was applied.
- This study showed that the tensile strength of treated Sudanese petroleum could be improved dramatically in order to meet the required Strength of good metallurgical coke.
- The work was funded by the Developing Solutions programme between the Islamic developing Bank and the University of Nottingham.

M.Sc., Chemical Engineering

2002-2004

Karary Academy of Technology, Sudan

Thesis title: **Novolak-Wood Composite**

Supervisor: **Prof. Mohamed Talballa**

Passed: Merit

M.Sc. Courses undertaken

- Engineering Mathematics
- Process Transfer
- Petroleum Refining
- Petrochemical Industry
- Applications of Instrumental Techniques in Chemical Engineering
- Economics Evaluation of Processes and Projects
- Catalysis, Catalytic Reactors and Reactor's Design
- Polymer Technology

B.Sc., Chemical Engineering (honour)

1992- 1999

Nasser University, Faculty of Engineering, Department of Chemical Engineering

Key Trainings

- Attended a day course on 3D image data visualisation, analysis and model generation simpleware software organized by Simpleware Limited, in the University of Nottingham, UK **May, 2012**
- a practical look at core teaching skills, University of Nottingham **May, 2012**
- Introductory Event to Teaching for PG Research Students and Researchers, organized by the University of Nottingham. **Apr., 2011**
- Demonstrating in Laboratory Practicals organized by the University of Nottingham for training the PhD students who are working as Lab instructors. **Nov., 2010**
- Marking and Assessment organized by the University of Nottingham for training the PhD students who are involved in marking of Lab reports and exam scripts. **Oct., 2010**
- Supporting students doing underrate projects and dissertation **Oct. 2010**
- Waste Management ,Institute of Petroleum, Safety, Health and Environment Management, Khartoum, Sudan. **Sep., 2006**

- Training course in Heat Exchangers ,(Design, Operation, Maintenance and Enhancement),University of Khartoum, Faculty of Engineering and Architecture, Department of Chemical Engineering. **Oct., 2004**

Technical Skills

- Materials processing and characterisations.
- Experienced in the use of X-ray computed tomography (X-ray CT) and its applications.
- Optical microscopy (Oil and air objectives), SEM/EDX.
- XRD, DSC, TGA, AccuPyc II Pycnometer and Mercury Porosimetry.
- GC, Atomic absorption,IR and UV.
- Strong record of representative sampling and structured way of working.
- Mechanical Testing, Compressive, tensile strength, creep and fatigue tests.

Computing skills

- Microsoft Office suite, HYSIS & SuperPro designer.
- imageJ and simpleware softwares for 3D image anlysis.

Awards and honours

- **Pubilished six International conferenece papers during PhD** **2009-2014**
- Coal Research Forum (CRF), (<http://www.coalresearchforum.org/>), **Oct, 2013**
travel bursary to deliver an oral presentation at the International Scientific Conference the University of Pennsylvania, **US**.
- Coal Research Forum (CRF), **travel bursary** to deliver an oral presentation at the International Scientific Conference in the University of Leeds, **UK**. **Oct, 2010**
- **Developing Solutions Scholarship Programme** form the University of Nottingham, UK, Schoarship amount: (75%) towards tution fees for three years PhD **Aug, 2009**
- **The Islamic Devolpment Bank Merit Scholarship** (3 years PhD) **Aug, 2009**
Programme for High Technology, Jeddah, Kingdom of Saudia Arabia.
- **Merit in M.Sc.** from Karay Academy of Technology, Sudan **Nov, 2004**
- **Prize of Best quaility of research** in the M.Sc dissertation., **Nov, 2004**
I was earned a postion of Research asistant in the Materisals and Electronics Rsearch Institute of the National Center for Research,Khartoum, Sudan.
- **Full Schoalrship** from the Ministry of Higher Eduation, Libya, for **Apr., 1992**

Undergraduate studies, Libya.

- **Ranked among the Upper 10%** of my class in academic year
in B.Sc., Chemical Engineering.

1998-1999

Research Experience

UK

Research Associate: Faculty of Engineering, Department of Chemical and Environmental Engineering, *The University of Nottingham*, **Dec. 2013 – present.**

The research activities within this role are primarily based on laboratory investigation of biomass and coal. Responsibilities include:

- Developing and validating the grindability index of biomass and coal.
- Developing the methodology of grinding and connecting it with the sieving process.
- Chemical and mechanical characterisation of materials: micro & macro structures of materials in lump form.
- Microscopic analysis; coal rank and mesophase analysis of petroleum pitch.
- Worked with academics to prepare reports.

Research Assistant (Mar.2010-Apr 2013): Part time exploring suitable methodology to characterise micro-structure of large coke lumps using optical and SEM techniques using the same specimen. This work was a part of a collaboration project between the University of Nottingham, The University of New South Wales NSW Australia, CSIRO Earth Science and Resource Engineering, Australia. The project was funded by the Australian Coal Industry's Research Program (**ACRAP**)(<http://www.acarp.com.au/>)

Doctoral Research: Department of Chemical and Environmental Engineering, University of Nottingham, UK. Developed a process for petroleum coke upgrading to the required qualities for blast furnace operations as well as developed a new technique for coke characterisations in terms of micro and macro structures using X ray computed tomography.

Sudan

Chemical Engineer, Department of Materials and Electronics Research Institute (MERI), National Centre for Research (NCR), Ministry of Science and Technology (MOST), Sudan

- Full time Researcher, Nov. 2004 - July 2008.
- Full time Assistant Researcher, March – Nov. 2004.
- Part-time Assistant Researcher, Feb. 2003 - March 2004.

Teaching Experience

- Teaching assistant, Introduction to Chemical Engineering I&II, Libya, 2000

- Teaching asistant, Mathematics I&II for foundation year, UK, 2014
- Pollution
- Engineering drawing, Libya, 2001
- **Courses can be taught:** (Renewable Energy, Heat transfer and Thermodynamics).
- Coordinating the Master of Materials programme between the Institute of Materials in the national Centre of Research and Sudan University for Science and Technology for Higher Education by Research (2006-2008).
- Supervising of 2 undergraduate students in the final year projects led to B.Sc. in Chemical Engineering (2013).
- Laboratory Demonstrator at the School of Chemical Engineering, unit operations; crystallisations, Department of Chemical Engineering, University of Nottingham, UK (2010-2014).
- Exam assistant invigilator at the University of Nottingham (paper exams, online& alternative exams) 2010-2011.
- Exam Lead invigilator at the University of Nottingham (paper exams, online exams and alternative exams) 2011- present.

Administrative Experiences

UK

- The representative of International Libyan Company for Renewable Energy (ILCRE) in the UK, **July 2014- present.**
- A spokesman of the IDB Scholars Association, UK, **2012-2013**
- Represented the Islamic development Bank at the 10th Anniversary of Developing Solutions Schoarship Program, Unversity of Nottingham, UK, **30 Apr., 2012.**
- Orginsed a workshop for establishing the IDB Scholars Association in the UK, University of Nttingham, **12 Apr. 2012.**
- The Coordinator of the IDB Scholars at the University of Nottingham, **2010-2012.**

Sudan

- Director of the Institute of Materials and Electronics (MERI), National Centre for Research (NCR), Khartoum, Sudan, **2007-2008**
- Head of Polymer & Composite Materials Department, Institute (MERI), National Centre for Research (NCR), Khartoum, Sudan, **2006-2007.**
- Diploma in Neuro – Linguistic Programming (NLP) ,Illaf Train, the Human Resource Development Leader (HRDL) , Khartoum, Sudan, **Aug., 2006**
- Assistant Practioner (AP), (NLP), (HRDL), Illaf Train, (HRDL), Khartoum,Sudan. **Sep., 2006.**
- Supervisor of the Chemical Laboratory (MERI), (NCR), Khartoum, Sudan, **2004-2005.**
- Supervisor of the Seminar activities in the Institute (MERI), **2004-2006.**

- Contributor & member of the reception and services committee and interpreter of the 6th Scientific Conference (NCR), Khartoum, Friendship Hall, **9 – 11 Dec. 2003**.
- Supervisor of the Chemical Materials and Quality Control Unit, Al-Saraya Contractors and Investment Company, **Dec. 1999 – Nov. 2002**, Tripoli- Libya.

Professional Memberships

- Associate member of the Institution of Chemical Engineers (**AMIChemE**), UK.
- Advancing Chemical Engineering Worldwide (IchemE) (membership no: **15596**)
- Member of Minerals Engineering Society, UK
- Member of Federation of Sudanese Engineers.
- Member of Sudanese Engineering Society.
- Co-establishing member of Petroleum and Gas Journal, Ministry of Energy and Mining, Sudan.
- Member of Sudanese Environment Conservation Society (**SECS**)
- Co-establishing member of Sudanese Occupational Safety Society.

Interests & Personal Skills

- Reading, playing football & travel.

Scientific Publications and Reports

- Williams O., Lester E., **Ismail M.**, Bond Index report for RWE npower company, March 2014, the University of Nottingham, **UK**.
- **Ismail M.**, Lester E., Patrick J. W., Modified petroleum coke as a potential substitute for metallurgical coke'. Proceedings of 9th International Conference on Coal Science and Technology. September 29- 4 October, 2013. Pennsylvania, **United State**.
- **Ismail M.**, Lester E., Patrick J. W., Utilization of X-ray Computed Tomography in the prediction of coke strength. Proceedings of the 8th European Conference on Coal and its Applications. 2012 Nottingham, **United Kingdom**.
- **Ismail M.**, Lester E., Patrick J. W., Assessing the potential for substituting metallurgical coke preheated with biomass. Proceedings of the 9th European Conference on Coal and its Applications. 2012. Nottingham, **United Kingdom**.
- Gupta S., Lester E., **Ismail M.**, Brien G. O., Optical and Scanning Electron Microscopy of coke: Microstructure & Minerals. Proceedings of the 9th International Conference on Coal and Technology (ICCS&T). 2011. **Oviedo, Spain**.
- **Ismail M.**, Lester E., Patrick J. W., The potential to upgrade petroleum cokes using high temperature' Proceedings of the 9th International Conference on Coal and Technology (ICCS&T). 2011. **Oviedo, Spain**.
- **Ismail M.**, Lester E., Patrick J. W., A comparison of petroleum cokes and traditional cokes. Proceedings of the 8th European Conference on Coal and its applications. 2010. Leeds, **United Kingdom**.

- Talballa M. and **Ismail M.**, Novolak-Wood Composite, Proceedings of Scientific Research and its role in Utilization of polymers in Arab Industries. 2005. Tagora, **Libya**.

References

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