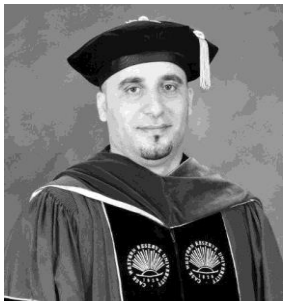
ASSISTANT PROFESSOR: MAHFOUZ SAEED



Home: College of Engineering A'Sharqiyah University, Ibra Oman **Mobile**: +968-912-514-60
Email: mas352@case.edu

OBJECTIVE

To obtain a position in the fields of chemical engineering, Thermodynamics, photovoltaic, corrosion, or electrochemistry utilizing my professional and interpersonal skills

EDUCATION

PhD: 2014 Case Western Reserve University, Chemical Engineering — **Cleveland, Ohio, USA**
Research: Electrochemical Fabrication of Thin Film Photovoltaic Devices (CIGS & CIGSS),
Research Advisor: Prof. Uziel Landau

M.Sc.: 2006 Cracow University, Chemical Engineering Department — **Cracow, Poland**
Project: Viscosity of multicomponent liquid mixtures: correlation & prediction

B.Sc. 1997: Sirte University, Chemical Engineering Department — **Sirte, Libya**
Project: Petrochemical separation process and distillation

SKILLS & EXPERIENCES

EXPERIENCE:

- **Assistant Professor,** September, 2014 to present, Department of Environmental Engineering, A'Sharqiyah University, Ibra, Oman.
- **Teaching Assistant**: 2012-2013, Department of chemical Engineering, Case Western Reserve University Cleveland, OH, USA
- **Lecturer**: June, 2006-August 2008, Department of chemical Engineering, Sirte University' Sirte Libya

THIN FILMS (PHOTOVOLTAIC FABRICATION AND TESTING)

- Electrodeposition of a complete CIGS device (including Barrier [Copper, chromium, nickel], CIGS and CIGSS absorber layer, CdS, un-doped zinc oxide, and doped zinc oxide layer
- Electrochemistry: electrodeposition of metals (e.g., copper, nickel, chromium, zinc), their alloys, and compounds (e.g., zinc sulfide)
- Co-evaporation; sputtering (Thin film semiconductors), Electron beam deposition (Thin film semiconductors) o Solar cell testing

ELECTROCHEMICAL TECHNIQUES

- Experienced in conducting a wide variety of electrochemical and materials characterization procedures:
- Electrochemical: Polarization, Rotating disk experiments, CV, and transient techniques.
- Materials testing: SEM, XRD, EDS, FIB, quantum efficiency, Solar Simulators, and spectroscopic ellipsometery.

MATERIALS CHARACTERIZATION

- Rheology and thermodynamics of multicomponent liquid mixtures
- Measurements of physical properties of liquid solutions: Properties correlation & prediction

SEPARATIONS PROCESS

- Desalination processes: design and testing

ACHIEVEMENT

Developed the first all electrochemically processed photovoltaic device (both CIGS and CIGSS based)

TEACHING EXPERIENCE:

- Teaching assistant: Undergraduate laboratories (Physical chemistry, and petroleum processing) Chemical Engineering at Sirte University, 1998-2002

- Instructor of undergraduate courses (Physical chemistry, petroleum processing, industrial organic chemistry, thermodynamics, and chemical engineering material and energy balances) Sirte University, 2006 – 2008.
- Teaching assistant in graduate and undergraduate courses (senior lab, process analysis and design, and transport phenomena). Case Western Reserve University, Chemical Engineering department Cleveland OH USA.
- Assistant professor: A'Sharqiyah University, Ibra Oman. Courses :(Thermodynamics, Fluid mechanics, Numerical Methods by Matlab, and Desalination Engineering) 2014 to the present time.

TAUGHT COURSES:

- Thermodynamics
- Heat Transfer
- Hydraulics Engineering
- Fluid Mechanics
- Mass transfer
- Water and Wastewater Treatment
- Environmental Chemistry
- Corrosion Engineering
- Plant Design

CONFERENCES AND PUBLICATIONS

- M. Saeed, O. Gonzalez, and U. Landau "CIGS Electrodeposition from Improved Electrolytes: Electrochemical Characterization and Transport Effects", 2905, 222 ECS , (2012).
- M.Saeed, and U. Landau, "CIGSS Electrodepositionfrom a Single Electrolyte", #2037, 224th , (2013).
- M. Saeed, and U. Landau, "Fabrication of a Complete Photovoltaic CIGS Device by Electrodeposition", Abstract # 42136, 226th ECS Meeting and SMEQ Joint International Meeting, Cancun, Mexico (October 5-10, 2014).
- M. Saeed, and U. Landau, "Pulsing of ZnO layers for photovoltaic applications: controlling film thickness and optical properties". 8th International Workshop on Zinc Oxide and Related Materials (IWZnO 2014), September 7-11, 2014, Niagara Falls, Ontario, Canada**.**
- M. Saeed, and U. Landau, "Electrodeposition of Doped ZnO Layer Using Three Different Dopant (Properties and structure)", Paper ## H01-1253,226th the 229th ECS Meeting (May 29 - June 2, 2016) in San Diego USA.
- M. Saeed, "$Cu_2(ZnSn)(S)_4$ Electrodeposition from a Single Bath for Photovoltaic Applications", Absract # 36751, ICSREE 2016 : 18th International Conference on Sustainable and Renewable Energy Engineering on November, 16-17, 2016 at Dubai, UAE

- M. Saeed, and U. Landau, "Pulsing of $Cu_2(ZnSn)(SSe)_4$ from a Single Bath for Photovoltaic pplications", Paper # G01, 231st ECS Meeting May 28-June 2, 2017 — New Orleans, LA Hilton New Orleans Riverside USA.
- M. Saeed, "Electrochemical Pulsing Deposition of CTZS (Optical and Structural properties) Solar Energy Applications", Symposium: I05: Renewable Fuels via Artificial Photosynthesis or Heterocatalysis 3 (# I05-1927), 233rd ECS Meeting in Seattle, WA (May 13-17, 2018)
- M. Saeed, "Muli-Bath Electrodeposition of CTZS Increasing Sulfur Ratio Close to Back Contact", Symposium: B07: Light Energy Conversion with Metal Halide Perovskites, Semiconductor Nanostructures, and Inorganic/Organic Hybrid Materials (#B07-0855), the 235th ECS Meeting in Dallas, Texas (May 26-30, 2019).
- Saeed, M.; González Peña, O.I. Mass Transfer Study on Improved Chemistry for Electrodeposition of Copper Indium Gallium Selenide (CIGS) Compound for Photovoltaics Applications. *Nanomaterials* 2021, *11*, 1222.
- $Cu_2(ZnSn)(S)_4$ Electrodeposition from a Single Bath By Both DC and Pulsing Current with Atomic Ratio Optimization," to the upcoming 241st ECS Meeting in Vancouver, Canada. 2022
- $Cu(InGa)(SeS)_2$ Electrodeposition from a Single Bath Using Pulsing Current Technique," G02-1810, 243st ECS Meeting in Boston, MA, USA. 2023, May28-June 2, 2023)

RESEARCH GRANT

- TRC Student Grant

  "Clay mineral to remove algae bloom from seawater in Oman" 2019
- RG REASRCH COUNCIL

  " Sustained water desalination station (SWDS)" 2020
- RG research grant

  "Characterization and Optimization of Proton Exchange Membrane Fuel Cell for Electric Vehicles Applications"

NEW PROGRAM DEVELOPER

- Program Developing Leader: Energy Engineering program
- Developing Member: Water Engineering Program

PROFESSIONAL SERVICES

- Journal of Electrochemical Society reviewer
- Research Reviewer
- TRC Oman Reviewer

Reviewer for the following international journals:

- Journal of Electrochemical Society
- Journal of Nanomaterials
- Journal of Kejuruteraan

University Level:

- Quality Assurance member.
- New programs developer.
- Environmental Engineering Program leader.
- External and internal of examiner for final year projects.

COMPUTER SKILLS

- MATLAB
- COMSOL
- Microsoft (Excel, Word, and PowerPoint)
- Research Software's
- Origin
- CHEMCAD
- HYSYS

PROFESSIONAL WORKSHOPS ATTENDED

- Scanning Electron Microscope (SEM) machine.
- Potentiostat parameters and operation
- X-ray Diffraction (XRD)

- Professional training in Wastewater treatment techniques.
- Scanning Electron Microscope (SEM) machine.
- Energy-dispersive X-ray spectroscopy (XEDS).
- Desalination plant training
- Professional training in Wastewater treatment techniques.

LANGUAGES

- English
- Arabic
- Italian

PROFESSIONAL AFFILIATION

- Member of Electrochemical Society
- Member of American Institute of Chemical Engineers AIChE

REFERENCES

Name	Position	Email
Uziel Landau	Professor, Case Western Reserve University, USA	uxl@case.edu
Daniel Lacks	Professor, Case Western Reserve University, USA	djl15@case.edu
Sam Wamuziri	Dean of Engineering, A'Sharqiyah University	S.wamuziri@asu.edu.om