

Mohamed Ali Elhelaly

Lecturer at Tabbin Institute for Metallurgical Studies

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SUMMARY

Experienced Lecturer - Mining and Metallurgy department of working in a governmental educational research institution. Skilled in NDT, Welding Technology, Coatings Technology, Safety, Quality Management, Nanotechnology, and Heat Treatment. Strong education professional with a Doctor of Philosophy (Ph.D.) Focused in Material Science from Ain Shams University.

WORK EXPERIENCE

Lecturer at Tabbin Institute

April 2011 – Present

Lecturer at Mining and Metallurgy Engineering department Tabbin Institute for Metallurgical Studies, Cairo, Egypt.

Supervised on Non-Destructive Test NDT, Heat Treatment and Metallography labs, contain the following test:

- Chemical Analysis
- Sample preparation to metallographic examination
- Optical Microscopy
- Non-Destructive Test (VT – PT – MT – UT – RT)
- Destructive Test (Impact – Tensile – Pending – Compression)
- Hardness and Microhardness
- Scanning Electron Microscopy SEM
- Energy dispersive x-ray EDX
- Heat Treatment Process (Annealing – Q & T – Normalizing)

Technical Reports

- **Failure analysis case studies- above 50 reports**
- **Above 100 Technical reports in Boiler Inspection**
- **Above 100 Technical reports in Material Characterization**

to the Industrial Sectors as

- Petroleum & Natural Gas
- Chemical & Petrochemicals
- Iron, Steel and Nonferrous Metals
- Electricity & Power Generation

Research Field:

- Study different coatings composition to improve hot corrosion and high temperature oxidation for superalloy.
- The effect of high temperature on different alloys.
- Synthesis of nano-composite for use in coating application.
- Heat treatment for steel alloy.
- Metallurgical Failure Analysis Case Study.

Teaching parts process for pre-master students in Tabbin Institute.

Teaching training courses in (NDT, Physical Metallurgy, Corrosion, Heat Treatment, Surface Engineering, Failure Analysis, Welding Technology, Material Selection) in Tabbin Institute.

Experience with the international standards (ASTM – ASME – ISO – API, ...)

Instructor at Arab Iron & Steel Union.

Instructor at Eldaralarabia for Industrial Development and Management.

Follow up the implementation of instructions for safety standard within the laboratory.

Application of ISO 9001-2015 instructions within the laboratory.

Participating in preparing the NDT lab to obtain the ISO 17025 certificate.

Internal Auditor to ISO 17025 in calibration lab at Tabbin Institute.

Reviewer at International Journals

- Engineering Failure Analysis – Elsevier
- Materials Today: Proceedings – Elsevier
- Materials Science Forum – Scientific.Net
- Engineering Research Express – IOP science
- Surface Topography: Metrology and Properties – IOP science

Editorial member at

Nanotechnology Pages – VOXCON JOURNAL – USA.

Journal of Modern Industry and Manufacturing, Innovation Forever Publishing Group China

Quality Control Specialist at Cairo for Oil

October 2010 - July 2011 (9 months)

EDUCATION

Ain Shams University

Doctor of Philosophy (Ph.D.), Material Science, 2016 – 2022, with title:

Preparation and Characterization of Some Transition Metal Compounds for Analytical and Industrial Applications.

Ain Shams University

Master's degree (M.Sc.), Material Science, 2011 – 2016, with title:

The Effect of Rare-Earth Metal Addition on the Oxidation and Hot Corrosion Resistance of Chromo- aluminized Nickel-Base Super Alloy.

Ain Shams University

Bachelor's degree, 2005 - 2010

Certifications

- Preparation ASNT Basic Level III.
- Radiographic Testing (RT Level II).
- Ultrasonic Testing (UT Level II).
- Liquid Penetrant Test (PT Level II).
- Magnetic Particles Test (MT Level II).

- VISUAL INSPECTION (VT Level II).
- ISO/IEC 17025:2005 General requirements and estimation of measurement uncertainty and statistical measurement process control (SMPC).
- The Test of English Proficiency (TELP) score 500.
- Advanced Chemical Industries Technology.
- Course members of Occupational Safety and Health committees from National Institute for Occupational Safety and Health.
- Chromatographic Techniques.
- The International Computer Driving Licence - (ICDL).
- Candidate to Certified Welding Inspector CWI from American Welding Society.

Publications

- **Elhelaly, M. A.***, M. A. El-Zomor, M. S. Attia, and A. O. Youssef. "Characterization and Kinetics of Chromium Carbide Coatings on AISI O2 Tool Steel Performed by Pack Cementation." *Journal of Materials Engineering and Performance* (**2021**): 1-11.
- El-Zomor, M. A., M. H. Ahmed, **M. A. Elhelaly***, and F. S. Ahmed. "Metallurgical Failure Analysis of Hydraulic Drilling Jar." *Transactions of the Indian Institute of Metals* (**2021**): 1-9.
- **Elhelaly MA***, El-Zomor MA, Youssef AO, Attia MS. Characterization of VC Coatings on Cold Work Tool Steel Produced by TRD. *Manufacturing Technology*. **2021**;21(5):600-605.
- Ahmed, M. H., M. A. El-Zomor, S. M. Khafagi, and **M. A. El-Helaly***. "Metallurgical failure analysis of twisted-off heavy weight drillpipe." *Engineering Failure Analysis* 112 (**2020**): 104531.
- **Elhelaly, M. A.***, Elzomor, M. A., Ahmed, M. H., & Youssef, A. O. Effect of Zirconium Addition on High-Temperature Cyclic Oxidation of Diffusion Chromo-Aluminized Ni-Base Superalloy, *Oxidation of Metals* 91.1-2(**2019**):159-175.
- **Elhelaly, M. A.***, Elzomor, M. A., Ahmed, M. H., & Youssef, A. O. Effect of zirconium addition on hot corrosion behavior of chromium-aluminum coating on nickel-based superalloy. 25th Congress of International Federation of Heat Treatment and Surface Engineering- 14-11 Sep. **2018- Xi'an- China**.
- **Elhelaly, M. A.***, Elzomor, M. A., Ahmed, M. H., & Youssef, A. O. Improving Hot Corrosion Resistance of Ni-Base Superalloy with Cr-Modified Aluminide Coatings, (6th International Conference on Corrosion Mitigation and Surface Protection technologies -Dec.**2017** – Sharm El-Sheikh, Egypt).
- **Elhelaly, M. A.***, Elzomor, M. A., Ahmed, M. H., & Youssef, A. O. Improving High Temperature Oxidation Resistance of Ni-Base Superalloy with Chromo-Aluminizing Diffusion Coatings, *TIMS bulletin*, v 104, **2016**, pp 43-55.
- **Elhelaly, M. A.**, Elzomor, M. A., Ahmed, M. H., Effect of coating temperature on Zr-doped Chromo-Aluminizing Diffusion Coatings layer and microstructure. *Under the publishing*.

Membership

- ✓ The Egyptian Heat Treatment Society (**EHTS**)- member of international federation of heat treatment and surface engineering (**IFHTSE**)
- ✓ Egyptian Corrosion Society

Languages

Arabic

English

International Conferencies

- *3rd International Conference in Africa and Asia on Welding and Failure Analysis of Engineering Materials-Nov.2015 – Luxor, Egypt.*
- *6th International Conference on Corrosion Mitigation and Surface Protection technologies -Dec.2017 – Sharm El-Sheikh, Egypt.*
- *25th Congress of International Federation of Heat Treatment and Surface Engineering- 14-11 Sep. 2018- Xi'an- China.*
- *26th IFHTSE CONGRESS 2019 - September 17-19, 2019, Moscow, Russia.*

SKILLS

Nondestructive Testing (NDT) – Nanotechnology – Welding Technology - Corrosion Protection - Heat Treatment - Scanning Electron Microscopy - AWS CWI - Failure Analysis - X-ray diffractometry - Atomic Absorption - Coatings Technology - Chemical Vapor Deposition (CVD) - Surface Engineering – Nanotechnology - physical metallurgy - steel metallurgy – metallography - hot corrosion.