Samar Reda

Curriculum Vitae

Samar Reda, PhD

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Scopus: https://www.scopus.com/authid/detail.uri?authorId=57194506330

GoogleScholar:
https://scholar.google.com/citations?user=wAzoHaUAAAAJ&hl=en&oi=ao

EXPERTISE

Metallurgical Engineering, Additive Manufacturing, Laser Material Processing, Laser Material Interaction.

UNIVERSITY EDUCATION

2018 **Doctoral degree in Engineering Applications of laser,** The National Institute of Laser Enhanced Sciences, Cairo University. Dissertation on "Laser Cladding of Ti-6Al-4V Titanium Alloy Using High Power Nd:YAG Laser", Thesis advisor: Prof. Salah Hassab Elnaby

2015 **M.Sc. degree in Engineering Applications of laser,** The National Institute of Laser Enhanced Sciences, Cairo University. Dissertation on "Laser Surface Treatment of Machinable Martensitic Stainless Steel", Thesis advisor: Prof. Salah Hassab Elnaby

2011 **B.Sc., Metallurgical Engineering Dept., Faculty of Engineering, Cairo university.**
Graduation Project: Welding of stainless steel.
Final Grade: Very Good with honor.
Project Grade: Excellent.

PROFESSIONAL EXPERIENCE

Nov. 2023 – Date **Associate Professor,** Engineering Applications of Laser Department, The National Institute of Laser Enhanced Sciences, Cairo University.

Oct. 2018 - Oct. 2023 **Lecturer,** Engineering Applications of Laser Department, The National Institute of Laser Enhanced Sciences, Cairo University.

Sep. 2015 - Oct. 2018 **Assistance Lecturer,** Engineering Applications of Laser Department, The National Institute of Laser Enhanced Sciences, Cairo University.

Feb. 2012 - Sep. 2015 **Demonstrator,** Engineering Applications of Laser Department, The National Institute of Laser Enhanced Sciences, Cairo University.

Dec. 2018 – Date **Supervisor,** The Combustion and Material Processing Laboratory, Engineering Applications of Laser Department, The National Institute of Laser Enhanced Sciences, Cairo University.

April 2023 - Date **Vice Director**, of Laser Technology Center - The National Institute of Laser Enhanced Sciences, Cairo University.

May 2022 – Date **Head of Unit,** Laser Safety Training Unit, Laser Technology Center "LTC", The National Institute of Laser Enhanced Sciences, Cairo University.

Summer 2023	**Coordinator,** the summer training in the EAL department for undergraduate students of Faculty of Science, Cairo University & Faculty of Science, Beni Suef University.
2023 to Date	**Member in the Board of Directors,** the Laser Technology Center, "LTC", The National Institute of Laser Enhanced Sciences, Cairo University.
2015 to Date	**Technical Member,** the Laser Technology Center, "LTC", The National Institute of Laser Enhanced Sciences, Cairo University.
2019 to Date	**Students & Graduates Coordinator,** Quality Assurance Unit, The National Institute of Laser Enhanced Sciences, Cairo University.
Academic year 2019-2020 & Dec. 2023 to Date	**Member in the Council,** the Department of Engineering Laser Applications, The National Institute of Laser Enhanced Sciences, Cairo University.
2019-2020	**Community Service and Environmental Affairs Member,** The National Institute of Laser Enhanced Sciences, Cairo University.
2021 to Date	**Control Member,** Engineering Applications of laser Department, The National Institute of Laser Enhanced Sciences, Cairo University.
2015	Participating in the preparation of course descriptions for EAL department courses in the 2016 internal postgraduate regulations.
2019-2022	**Academic Guide,** for Postgraduate Diploma students, the Engineering Laser Applications Program in the Engineering Laser Applications Department.
July 2023 to Date	**Member of the Green Office**, of Community Service and Environmental Affairs, The National Institute of Laser Enhanced Sciences, Cairo University.
Aug. 2022 to Date	**Member of the Technical Committee** for Non-Ionizing Radiation at the Ministry of Health and Population

Assoc. Prof. Samar Reda Al-Sayed

Faculty Activity

HONOURS AND AWARDS

2022 **Cairo University Encouragement Award 2024,** Cairo University.

PUBLICATIONS

Peer reviewed (ISI) Journals

2024

1. Samar Reda Al-Sayed*, Haytham Elgazzar, Adel Nofal "A comparative study of laser fluence effect on surface modification and hardness profile of austempered ductile iron", Journal of Materials Research and Technology. 2024, 3189-3204. doi.org/10.1016/j.jmrt.2024.07.052
2. Al-Sayed, S.R.*, Youssef, D. "Surface quality evaluation through new optical imaging system-based objective speckle for additive manufactured titanium samples", Additive Manufacturing, 2024, 94, 10447. https://doi.org/10.1016/j.addma.2024.104475.

2023

3. Samar Reda Al-Sayed*, Haytham Elgazzar, Adel Nofal "Metallographic investigation of laser-treated ductile iron surface with different laser heat inputs" Ain Shams Engineering Journal. 2023, 102189. DOI:10.1016/j.asej.2023.102189.

2022

4. Youssef, D.; Hassab-Elnaby, S.; Al-Sayed, S.R.* New 3D model for accurate prediction of thermal and microstructure evolution of laser powder cladding of Ti6Al4V alloy. Alexandria Eng. J. 2022, 61, 4137–4158, doi:10.1016/j.aej.2021.09.014.
5. Al-Sayed, S.R.*; Elgazzar, H.; Nofal, A. Microstructure Evaluation and High-Temperature Wear Performance. Met. Mater. Int. 2022, doi:https://doi.org/10.1007/s12540-021-01160-x.
6. Nagy, R.; Ahmed, E.; Elshazli, M.; Hamid, A.; Hussein, A.; Reda, S.; Sayed*. Impact of laser process parameters in direct energy deposition on microstructure, layer characteristics , and microhardness of TC21 alloy. Int. J. Adv. Manuf. Technol. 2022, doi:10.1007/s00170-022-09644
7. Al-sayed, S.R.*; Samad, F.A.; Mohamed, T. Novel Surface Topography and Microhardness Characterization of Laser Clad Layer on TC4 Titanium Alloy Using Laser-Induced Breakdown Spectroscopy and Machine Learning. Metall. Mater. Trans. A, 2022, doi:10.1007/s11661-022-06772-5

2021

8. Ahmed Magdi Elshazli, Ramadan N. Elshaer, Abdel Hussein, Ahmed Hamid, Samar Reda Al-Sayed*, Laser Surface Modification of TC21 (α / β) Titanium Alloy Using a Direct Energy Deposition (DED) Process. Micromachines (12) 7, 2021.

2020

9. Al-Sayed, S.R.*; Elshazli, A.M.; Hussein, A.H.A. Laser surface hardening of Ni-hard white cast iron. Metals 2020, 10, 795, doi:10.3390/met10060795.
10. Al-Sayed, S.R.*; Abdelfatah, A. Corrosion Behavior of a Laser Surface-Treated Alpha–Beta 6/4 Titanium Alloy. Metallogr. Microstruct. Anal. 2020, 9, 553–560, doi:10.1007/s13632-020-00667-w.

2019

11. Samar Reda Al-Sayed*, Abdel Hamid. A. Hussein, Adel A. Nofal, Salah. I. Hassab Elnaby, Haytham Elgazzar"A Contribution to Laser Cladding of Ti-6Al-4V Titanium Alloy" Metall. Res. Technol.116, 634 (2019).

2018

12. A. Hussein, S.R. Al-Sayed*, S.I. Hassab Elnaby, A.A. Nofal, d and H. Elgazzar "Prominent Achievements of Laser Surface Treatment of Martensitic Stainless Steel and Alpha-Beta 6/4 Titanium Alloy" Key Engineering Materials, Scientific.Net, Volume 786, 2018, Pages 87-97.

2017

13. S. R. Al-Sayed*, A.A. Hussein, A.A. Nofal, S.I. Hassab Elnaby, H. Elgazzar. Characterization of a Laser Surface-Treated Martensitic Stainless Steel. Materials 2017, 10(6), 595; doi:10.3390/ma10060595
14. S. R. Al-Sayed*, A.A. Hussein, A.A. Nofal, S.I. Hassab Elnaby, H. Elgazzar and H. A. Sabour. Laser Powder Cladding of Ti-6Al-4V α/β Alloy. Materials 2017, 10(10), 1178; doi:10.3390/ma10101178

Conference proceedings (SCOPUS-Indexed)

2024

1. Doaa Youssef and **Samar Reda Al-Sayed*,** "Evaluation of Surface Roughness of Ceramic-Metal Clad Beds Via Laser Speckles and Support Vector Regression" Optica Laser Congress 2024, Laser Applications Conference, Grand Prince Hotel Osaka Bay, Osaka, Japan, 20–24 October 2024.
2. Samar Reda Al-Sayed*, Ahmed Magdi Elshazli, and Ramadan N. Elshaer, "Wear Resistance Enhancement of TC21 Titanium Alloy Using Laser Cladding Composite Coatings" Optica Laser Congress 2024, Laser Applications Conference, Grand Prince Hotel Osaka Bay, Osaka, Japan, 20–24 October 2024.

2023

3. Doaa Youssef, Salah Hassb-Elnaby, and **Samar Reda Al-Sayed*,** Effect of Process Parameters on Ni-Based WC Powder-fed Direct Laser Deposition, Optica Laser Congress 2023, Laser Applications Conference, Tacoma, Washington United States 8–12 October 2023 doi.org/10.1364/ASSL.2023.JW2A.6.

2021

4. **S. R. Al-Sayed** and D. Youssef Exploiting Local Contrast Laser Speckle Photography for Surface Topometry of Laser Metal Deposition. In Proceedings of the Laser Congress 2021 (ASSL,LAC); Optica Publishing Group, 2021: Washington, DC United States, 2021; p. paper JM3A.60.
5. Youssef, D.; **Al-Sayed**, S.R. Microscale Clad Thickness Measurement after Laser Cladding via Laser Speckle Photography. In Proceedings of the NILES 2021 - 3rd Novel Intelligent and Leading Emerging Sciences Conference, Proceedings; Institute of Electrical and Electronics Engineers Inc., 2021; pp. 413–415.

2019

6. **Samar Reda Al-Sayed Ali***, Ahmed Magdi Elshazli, " Laser Treatment of Nickel-Chromium White Cast Iron" at the 10th international conference of laser applications (ICLA10) at the National Institute of Laser Enhanced Science (NILES) – Cairo University Center in Cairo, Egypt 23-28 Nov. 2019.

2018

7. A.A. Hussein, **S. R. Al-Sayed**, A.A. Nofal, S.I. Hassab Elnaby and H. Elgazzar, The International Conference on Materials Science and Engineering – 2018 Recent Advances and Challenges, Egypt-Japan University of Science and Technology, Alexandria, Egypt. "Prominent Achievements of Laser Surface Treatment of Martensitic Stainless Steel and Alpha-Beta 6/4 Titanium Alloy".

2014

8. S**. R. Al-Sayed**, A.A. Hussein, A.A. Nofal, S.I. Hassab Elnaby and H. Elgazzar, "Laser Surface Treatment of AISI 416 Machinable Martensitic Stainless Steels" 33rd International Congress on Applications of Lasers & Electro-Optics, San Diego, CA USA, October 19-23, 2014.

SUPERVISION OF POSTGRADUATE STUDENTS

1- PhD Thesis entitled "Development of Laser Surface Treatment of (α+β) Titanium Alloys", (Degree awarded data, 24-03-2022).

PEER-REVIEW OF SCIENTIFIC THESES

1- **M.Sc. Thesis, "**Employing femtosecond laser pulses to investigate the nonlinear optical properties of ZnO thin film doped with transition elements", May 2023.
2- **M.Sc. Thesis**, "Ultra-short Laser Pulses to study the Nonlinear Optical of Gold Nanoparticles Synthesized by Laser Ablation", December 2022.

EDITORIAL/REVIEWER BOARD

Editor, Advances in Materials and Processing Technologies Journal

Reviewer, Metals and Materials International
Reviewer, Materials Today Communications, Elsevier
Reviewer, Optics and Lasers in Engineering, Elsevier
Reviewer, Optik, Elsevier

INTERNATIONAL PARTICIPATIONS

2016 The SPSAS Nanophotonics School / XV Jorge Andre Swieca School of Nonlinear and Quantum Optics, held at the Gleb Wataghine Physics Institute – IFGW/ UNICAMP, Campinas, Brazil, on July 17-29, 2016.

2013 The 44th IFF Spring School "Quantum Information Processing" held in Juilich, Germany, February 25 – March 08, 2013.

NATIONAL & INTERNATIONAL MEMBERSHIPS

- Member in the Young Minds - European Physical Society Cairo section, Egypt
- Member in Research member at Researchers and Academics Platform - IFAD and the International Foundation for Academic Development
- Member in IEEE Photonics Society
- Member in IEEE Advancing Technology for Humanity Member in
- Member in OPTICA – Advancing Optics and Photonics Worldwide (OSA)

SOCIAL ACTIVITIES

- Vice Director at Laser Technology Center (LTC) at National Institute of Laser Enhanced Science, Cairo University, Egypt from 2023 till now.
- Head of the training unit at Laser Technology Center (LTC) at the National Institute of Laser Enhanced Science, Cairo University, Egypt from May 2022 till now.
- Member of the Technical Committee for Non-Ionizing Radiation at the Ministry of Health and Population from Aug. 2022 till now