Mesut Yurukcu

Innovation-oriented researcher with expertise in Thin Films, Coatings, Physical & Chemical Vapor Depositions, Electrochemical Depositions, Fuel Cells, Batteries, Alternative and Renewable Energy Applications, Experimental & Theoretical Studies, Simulations (Monte Carlo Simulations), Thermal Interfaces Materials (TIMs), 3D Printing, Sensors, MEMS.

Education and Credentials

Ph.D. in Applied Physics, University of Arkansas - Little Rock, AR 2018

Master of Science, University of Arkansas - Little Rock, AR 2017

Master of Project Management, DeVry University - Houston, TX 2008

Master of Business Administration, DeVry University - Houston, TX 2007

Professional Experience

INCENDIUM TECHNOLOGIES LLC., ROUND ROCK, TX
Research Fellow, March 2019-Present

- Developing of next-generation surface and interface materials using electroplating, electrodeposition, electroless and vapor deposition techniques.
- Commercializing advanced-stage thermal management technologies, including novel Thermal Interface Materials (TIMs) for electronic systems including microprocessors, mobile devices, personal computers, LEDs and energy storage devices.
- Working on nanocomposite TIMs provide the cooling capacity of a metal with the mechanical compliance of a polymer.

TEXAS A&M, COLLEGE STATION, TX
Post-Doctoral Researcher, July 2018-March 2019

- Worked in The Pharmaceutical 3D Printing Laboratory at The National Center for Therapeutics Manufacturing where has since its inception in 2016 concentrated largely on new material and 3D printing process development for nanocomposites.
- Studied in small molecule formulation and nanocomposites-based sensor applications for biomedical diagnostics.
- Focused on nano porous WO3 thin film growth, characterization and optimization for medical diagnostic devices.

UNIVERSITY OF ARKANSAS, LITTLE ROCK, AR
Graduate Assistant - Ph.D. Candidate, August 2012 to May 2018

- Studied applied sciences and physics to gain MEMS, Nanotechnology, fuel cell, batteries, Monte Carlo Simulations, and thin film property use and manipulation. Obtained considerable NSF grant contributed to, and extending, research.
- Instruments used: Voltammetry, SEM, XRD, RAMAN, TEM, EDAX, FTIR, Gas Chromatography, PEM fuel cell setup, battery test setup.
- Thin film/Nano structures growth techniques: GLAD-SAD, sputter depositions, thermal techniques, lithography, Physical and Chemical Vapor Deposition, ALD, and MBE.

Publications

- "Application of Machine Learning in Reservoir Characterization" **Mesut Yurukcu,** et. al., Book Chapter, Submitted on March 2020
- "Machine Learning Applications in EOR" **Mesut Yurukcu,** et. al., Book Chapter, Submitted on January 2020
- "Machine Learning Applications in Artificial Lift" H. Bisgin, et. al., Book Chapter, Submitted on September 2019
- "Ripple formation during oblique angle etching" F. Cansizoglu, et. al., April 2019, Coatings
- "Smart and State-of-the-art materials in oil and gas industry "O.Karakoc, et.al., Book Chapter, Submitted on April 2019
- "Advanced Materials for Next-Generation Fuel Cells" **Mesut Yurukcu**, et. al., Book Chapter, Submitted on March 2019
- "Stacked and Core-Shell Pt: Ni/WC Nanorod Array Electrocatalyst for Enhanced Oxygen Reduction Reaction in Polymer Electrolyte Membrane Fuel Cells" F. M.Yurtsever, et.al., October 2018, ACS Applied Energy Materials
- "The effect of the core/shell nanostructure arrays on PEM fuel cells: a short review", **Mesut Yurukcu**, et. al., April 2018, Materials Science &Engineering International Journal.
- "Conformity of PVD shell layers on vertical arrays of rods with different aspect ratios investigated by Monte Carlo simulations", **Mesut Yurukcu**, et. al., Feb 2017, MRS Advances.
- "Evaluation of double-layer density modulated Si thin films as Li-ion battery anodes". T. M. Demirkan, et. al., September 2017, Mater. Res. Express.
- "SAD-GLAD Pt-Ni @ Ni Nano rods as Highly Active Oxygen Reduction Reaction Electrocatalyst", N. N. Kariuki, et.al., April 2016, ACS Catalysis.
- "Oxygen reduction reaction electrocatalytic activity of tilted pt Nano rod arrays fabricated by glancing angle deposition", W. J. Khudhayer, et. al., July 2015, Journal of Applied Electrochemistry.
- "Investigation of physical vapor deposition techniques of conformal shell coating for core/shell structures by Monte Carlo Simulations", H. Cansizoglu, et.al., May 2015, Thin Solid Films.
- "SAD-GLAD core-shell Nano rod arrays for fuel cell, photodetector, and solar cell electrode applications", H. Cansizoglu, et.al., September 2014, SPIE Nanoscience and Engineering.

Conference Presentations

- "Investigating the Conformality of Shell Structures on GLAD Growth Rod Core Structures by Monte Carlo Simulation", **Mesut Yurukcu**, et al., MRS Fall 2018 Conference, poster presentation
- "Double Layer Density Modulated Si Thin Films for Lithium Ion Batteries" M. T. Demirkan, et. al., International Eurasian Conference on Science, Engineering and Technology, 22-23 November 2018, Ankara / Turkey
- "Pt-Ni/WC Alloy Nanorods Arrays as ORR Catalyst for PEM Fuel Cells", M. Begum, et. al., ECS Transactions, August 2017
- "Multijunction thin film electrodes for photoelectrolysis" R. Sharma, et. al., Proc. Annual Meeting of the Electrostatics of America, 2017
- "Conformity of PVD shell layers on vertical arrays of rods with different aspect ratios investigated by Monte Carlo simulations" **Mesut Yurukcu**, et al., MRS fall 2016 conference, invited speaker.