Cheng-Yu Lai, Ph.D.

1. **Name and academic rank:**

Cheng-Yu Lai, Associate Professor, Department of Mechanical and Materials Engineering
Secondary Appointment in the Department of Chemistry and Biochemistry

2. **Education – degree, discipline, institution, year**

Ph.D. Chemistry, Iowa State University, December 2004
M.S. Chemistry, National Chung-Hsing University, Taichung, Taiwan, June 1996
B.S. Chemistry, National Chung-Hsing University, Taichung, Taiwan, June 1994

3. **Academic experience – institution, rank, title**

18 Years
Tenured Associate Professor, Mech. & Mater. Eng. Dept., FIU, 2024-Present
Tenure-Track Associate Professor, Mech. & Mater. Eng. Dept., FIU, 2020-2024
Visiting Associate Professor, Mech. & Mater. Eng. Dept., FIU, 2018-2020
Associate Chair, Dept. of Chemistry, Delaware State University, 2014-2015
Associate Professor, Dept. of Chemistry, Delaware State University, 2012-2018
Postdoctoral Research Fellow – Department of Immunology, Scripps Research 2005-2007

4. **Non-Academic experience:**

Senior Research Chemist, DuPont Central Research and Development 2010-2012
Research Chemist, DuPont Central Research and Development, 2007-2012

5. **Certifications or professional registrations:** N/A

6. **Current membership in professional organizations**

Materials Research Society (MRS)
American Chemical Society (ACS)

7. **Honors and awards**

Departmental Research Excellence Award, Mechanical and Materials Engineering, 2023
Departmental Teaching Excellence Award, Mechanical and Materials Engineering, 2022
Research Excellence Award, Delaware State University, 2016
Professional Development Award, Delaware State University, 2013-2014
Sigma Xi Award for Excellence in Science, 2004
ACS Division of Inorganic Chemistry Travel Award, 2004
Teaching Excellence Award, Iowa State University, 2001

8. **Service activities (within and outside of the institution)**

NSF-NRT- Quantum Science, Technology and Applied Research at Florida International University (Q-STAR) Director
Editorial Board Member, Journal of Thermodynamics and Catalysis
Faculty Search Committee member, FIU

9. Selected Publications and Patents

Sahil Gasso, Jake Carrier, Daniela Radu, Cheng-Yu Lai. Novel Gas Sensing Approach: ReS2/Ti3C2Tx Heterostructures for NH3 Detection in Humid Environments, ACS Sens. 2024, ASAP. https://doi.org/10.1021/acssensors.4c01216.

Ha Na, Jake Carrier, Samuel Oyon, Cheng-Yu Lai. Fabrication of Rhenium Disulfide/Mesoporous Silica Core–Shell Nanoparticles for a pH-Responsive Drug Release and Combined Chemo-Photothermal Therapy. ACS Appl. Bio Mater. 2024, 7, 5, 3337–3345.

Navdeep Kaur, Linisha Biswal, Alexander Prieto, Cheng-Yu Lai, Daniela R Radu. Enhancing Efficiency in Dye-Sensitized Solar Cells: Incorporation of Cu3VSe4 Nanocrystals into TiO2 Photoanodes. ACS Appl. Energy Mater. 2024, 7, 11, 5038–5049.

"Dual-Band Arrays and Methods of Fabricating the Same" Elias Alwan, Assif Hassan, Cheng-Yu Lai and Daniela Radu, US Patent 11,862,854 (2024, FIU)

"Additive-Polymer Composite Materials and Methods of Fabricating the Same" Cheng-Yu Lai, Daniela Radu, Melissa Venedicto, Dakota Thomas, Samuel Oyon and Faizan Syed, US Patent Application 18,356,673 (2023, FIU)

Na, H; Venedicto, M; Chang, C-Y; Carrier, J; Lai, C-Y,Infrared-Activated Bactericide: Rhenium Disulfide (ReS2)-Functionalized Mesoporous Silica Nanoparticles, ACS Appl. Bio Mater. 2023, 6, 4, 1577–1585.https://doi.org/10.1021/acsabm.2c01084

Chang, C.Y.; Prado-Rivera, R.; Liu, M.; Lai, C.Y.; Radu, D.R. Colloidal Synthesis and Photocatalytic Properties of Cu3NbS4 and Cu3NbSe4 Sulvanite Nanocrystals. ACS Nanosci. Au 2022, 2, 5, 440–447

10. Briefly list the most recent professional development activities

- Attended ACS Meeting, 2022 and 2024
- Organized NASA Workshop for engaging FIU in Space Technology Mission Directorate research in support of Artemis Mission, December 2020
- Facilitated Georgia Tech Materials Science Seminar streaming, ongoing
- Attended MRS Tutorial: 2D Layered Materials for Quantum—From Growth to Quantum Properties and Applications at MRS Fall 2020 Meeting