

Nadeesha Kothalawala, Materials Scientist

633 Maxwelton Court, Unit 7, Lexington, 40508, United States, 8595393396, nadeeshakothalawala@uky.edu

LINKS

[LinkedIn](#) | [@NadeeshaKth](#), [Twitter](#) | [@NadeeshaKth](#)

PROFILE

- PhD Candidate and Research Scientist with a focus on Materials science, Spectroscopy, and Electrochemistry. Expert in synthesizing and optimizing these materials for applications such as optoelectronics and green hydrogen production. Proficient in experimental design, critical thinking, and ability to carry out independent research. Skilled in many materials characterization techniques including bulk/single molecule fluorescence spectroscopy, UV-Vis, Raman, FT-IR, XPS, AFM, EDS, and SEM with data analysis as demonstrated by multiple high-impact publications, with more underway.
 - Demonstrated ability to manage laboratory operations, ensuring chemical safety and efficiency adhering to the rules and regulations by the Environmental Health and Safety (EHS). In addition to leading various research projects, has played a crucial role in mentoring students at various academic levels, imparting comprehensive knowledge of physical chemistry and advanced materials science.
 - As an active participant in numerous professional and cultural organizations, continually striving to stay updated with the latest field developments, the focus on research, teaching, and community service work showcases collaborative work, strong communication abilities, and a steadfast dedication to the wider scientific community.
-

EMPLOYMENT HISTORY

Aug 2019 — Present

Graduate Research Assistant, University of Kentucky

Lexington

- Explored the role of surface states in emissive carbon nanodots with analysis at the single-particle level under Samsung Advanced Institute of Technology (SAIT) leading to the elucidation of the origin of photoluminescence published in *Chemistry-Asian Journal*.
- Studied and identified molecular fluorophore impurities in the synthesis of low-oxygen-content, carbon nanodots (CND) derived from pyrene in collaboration SAIT and multiple research groups providing a unique insight into the effect of impurities of such systems published in the *New Journal of Chemistry* as the lead author.
- Developed a green synthesis method for semiconducting Tungsten disulfide nanosheets and studied their electrocatalytic activity for hydrogen evolution reaction while establishing an *in-situ* Raman spectroelectrochemical method for elucidating the hydrogen evolution reaction mechanism of the process. – Manuscript in preparation
- Extended the applicability of Tungsten disulfide nanosheets by using them as a support for Pt single-atom catalysts (SACs) / Pt nanoclusters for hydrogen evolution reaction (HER) – Manuscript in preparation
- Established a qualitative analytical technique to determine the presence of nano/microplastics in human fluids using the analytical methods of IR and Raman spectroscopy in collaboration with the University of Kentucky Advanced Eye Care. – Manuscript in preparation
- Co-authored multiple collaborative publications in the *Journal of Applied Physics*, *Chemical Engineering Journal*, *Nanotechnology*, and *ACS Applied Electronic Materials* totaling six publications to date more in the pipeline.

Aug 2018 — May 2021

Graduate Teaching Assistant, University of Kentucky

Lexington

- Conducted general chemistry laboratory courses for freshmen/junior undergraduates.
 - Conducted physical chemistry laboratory for senior undergraduates and trained graduate teaching assistants in conducting the laboratory showing skills in teaching, mentoring, time management, and effective communication.
-

EDUCATION

Aug 2018 — Nov 2023

PhD in Chemistry, University of Kentucky

Lexington

Research Advisor – Dr. Doo Young Kim

Current cumulative GPA – 3.595

Jan 2012 — Jan 2018

Bachelor of Science in Chemistry, Institute of Chemistry Ceylon

Colombo

Graduated with second-class upper-division honors

Dean's List - 2nd and 4th years of undergraduate studies

SKILLS

FTIR spectroscopy
UV-Vis spectroscopy
X-Ray photoelectron spectroscopy (XPS)
Raman spectroscopy
Fluorescence/Single-molecule fluorescence spectroscopy
Atomic force microscopy (AFM)
Electrochemistry
Thermogravimetric analysis (TGA)

Materials synthesis
Scanning electron microscopy (SEM)
Energy dispersive X-Ray spectroscopy (EDS)
Transmission electron microscopy (TEM)
Insitu-Spectro electrochemistry
Chemical vapor deposition (CVD)
X Ray diffraction spectroscopy (XRD)

SELECTED PUBLICATIONS

Kothalawala, N. L.; Kim, S. W.; Kim, N.; Henderson, C. J.; Seol, M.; Yang, F.; Kwak, S.-Y.; Hwang, K. Y.; Son, W.-J.; Shin, H.-J.; et al. Identifying molecular fluorophore impurities in the synthesis of low-oxygen-content, carbon nanodots derived from pyrene. *New Journal of Chemistry* **2022**, *46* (17), 8324-8333. DOI: 10.1039/d2nj00430e.

Tang, X.; **Kothalawala, N. L.**; Zhang, Y.; Qian, D.; Kim, D. Y.; Yang, F. Water-driven CsPbBr₃ nanocrystals and poly(methyl methacrylate)-CsPbBr₃ nanocrystal films with bending-endurable photoluminescence. *Chemical Engineering Journal* **2021**, *425*. DOI: 10.1016/j.cej.2021.131456.

Kim, D.; Calabro, R. L.; Masud, A. A.; **Kothalawala, N. L.**; Gu, M.; Kwak, S. Y.; Son, W. J.; Hwang, K. Y.; Choi, H.; Richards, C. I.; et al. Exploring the Role of Surface States in Emissive Carbon Nanodots: Analysis at Single-Particle Level. *Chem Asian J* **2021**, *16* (24), 4155-4164. DOI: 10.1002/asia.202101087.

Kothalawala, N.L.; De Alwis Goonatileke, M.; Chandrasiri, N.; Rao, K.; Shrestha, S.; Kodithuwakku, U.S.; Seo, A.; Risko, C.; Guiton, B.S.; Kim, D.Y.; Green synthesis and electrocatalytic activity of semiconducting WS₂ nanosheets for hydrogen evolution reaction – *In preparation* **2023**

Kothalawala, N.L.; Rahman, M.T.; De Alwis Goonatileke, M.; Chandrasiri, N.; Guiton, B.S.; Huckaba, A.; Kim, D.Y.; WS₂ nanosheets as a support for Pt single atom catalysts (SACs) / Pt nanoclusters for hydrogen evolution reaction – *In preparation* **2023**

SELECTED PRESENTATIONS

Green synthesis and electrocatalytic activity of semiconducting WS₂ nanosheets for hydrogen evolution reaction - American Chemical Society National Meeting Spring 2023.

AWARDS

Outstanding research award (University of Kentucky Department of Chemistry) – 2023

Research Challenge Trust Fund Fellowship (University of Kentucky) – 2020

Award for outstanding performance in PhD oral qualifying exam (University of Kentucky Department of Chemistry) – 2020

Fast Start Award for outstanding initial overall progress towards the degree (Department of Chemistry University of Kentucky) – 2020

EXTRA-CURRICULAR ACTIVITIES

2021 — 2023

Sri Lankan Student Association (SLSA), University of Kentucky

President, 2022-2023 | Vice President, 2021-2022

2020 — Present

Electrochemical society, University of Kentucky student chapter

2018 — Present

Graduate Student Association (GSA), University of Kentucky