Kassapa Gamagedara

Professional Summery

- PhD candidate in Physics with deep expertise in tribo-electrochemistry, CMP slurry optimization, and surface/interface science.
- Proven track record in research, process optimization, and lab management.
- Recognized with awards and publications in peer-reviewed journals.
- Seeking to apply scientific problem-solving and technical leadership to drive innovation in semiconductor industry.

Key Skills

- CMP process development, slurry formulation, corrosion inhibition
- Electroanalytical methods: OCP, PDP, EIS, impedance modeling
- Experimental tools: CMP polishers, Potentiostat + FRA, AFM, SEM, glove box systems
- Data analysis: OriginLab, ZPlot/ZView, ZSimpWin, VersaStudio, Excel
- Lab management, safety compliance, training & mentoring

Research and Technical Experience

Graduate Researcher – CMP & Surface Science, Clarkson University | 2019–Present

- Designed and optimized CMP slurries for Cu, Co, Mo, and stainless steel.
- Investigated galvanic corrosion suppression strategies in Co/Cu systems.
- Developed post-CMP cleaning achieving 97% oxide residue removal using tartrate brush scrubbing.
- Applied electroanalytical diagnostics (OCP, PDP, EIS) under polishing.
- Managed lab operations: safety compliance, equipment upkeep, budgeting, training of junior researchers.

Graduate Teaching Assistant – Clarkson University | 2019-present

- Served as a Teaching Assistant for PH131/PH132 labs (mechanics, electromagnetism), developing skills in instruction, mentoring, and technical communication

Selected Publications

Gamagedara, K.U.; Roy, D. Tribo-Electrochemical Considerations for Assessing Galvanic Corrosion in CMP, Electrochem, 2025.

Santefort, D.R.; Gamagedara, K.U.; Roy, D. Stainless Steel CMP Using Citrate Buffer, Materials, 2025.

Gamagedara, K.U.; Roy, D.; Santefort, D.R. Experimental Strategies for Tribo-Electrochemical CMP Studies, Lubricants, 2024.

Santefort, D.; Gamagedara, K.U.; Roy, D. Tribo-Electroanalytical Evaluation of CMP Slurries and Post-CMP Cleaning Solutions, ICPT Proceedings, 2022.

Highlights

- Ph.D. Physics
- 6 publications
- CMP slurries & post CMP cleaning
- Electrochemical deposition
- Teamwork and collaboration
- Awards: Outstanding Grad Student (2025), Best poster (2022)

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Awards and recognition

Outstanding Graduate Student Award
Coulter School of Engineering, Clarkson University (2025)

1st Place, Best Graduate Poster
Clarkson Research & Project Showcase (2022)

Education

Expected 12/2025
Ph.D. in Physics
Clarkson University, Potsdam, NY
2021–Present

M.Sc. in Physics
Clarkson University, Potsdam, NY
2019–2021

M.Sc. in Physics of Materials
University of Peradeniya, Sri Lanka
2016–2018

B.Sc. in Physics, Mathematics & Statistics
University of Peradeniya, Sri Lanka
2013–2015