

ARUNA KUMARASIRI

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EDUCATION	University of Victoria , Victoria, British Columbia <i>Doctor of Philosophy, Chemistry</i>	2021–present
	University of Moratuwa , Moratuwa, Sri Lanka <i>Bachelor of Science (Dean's Honor List), Materials Science and Engineering</i>	2015–2020
RESEARCH EXPERIENCE	University of Victoria , Victoria, BC <i>Graduate Research Assistant</i>	SEP 2021–present
	Utilizing second-order nonlinear optics to examine interfaces, completely independent of the molecular orientation. The primary goal is to improve performance and expand the accuracy of determining interfacial properties at different interfaces.	
	University of Moratuwa , Moratuwa, Sri Lanka <i>Undergraduate Research Assistant</i>	AUG 2015–FEB 2020
	Investigated and improved the surface wettability of Ni20Cr alloy, introducing a novel nickel electrodeposition technique. The project, in collaboration with Flintec Transducers Inc. , led to the development of an instrument for assessing solder joint strengths and a new technique to break down the passivity of Ni20Cr alloy.	
	Straintec Pvt. Ltd. , Koggala, Sri Lanka <i>Research and Development Engineering Trainee</i>	AUG 2018–DEC 2018
PROFESSIONAL EXPERIENCE	(1) Developed an industrial-friendly method to accurately calculate the temperature coefficient of resistance of strain gauges, (2) Developed a software (Visual Basic.NET® 16.0) to assess the wettability of Ni20Cr thin films. The software is now used by Straintec Pvt. Ltd.	
	Flintec Transducers, Inc. , Koggala, Sri Lanka <i>Research and Development Engineer</i>	MAR 2020–AUG 2021
	(1) Studied the effects of hydrogen evolution during nickel electrodeposition on the microstructure of Ni20Cr alloy, (2) Researched throwing power of Watt's type baths using COMSOL Multiphysics®, and (3) Developed optimized electrodeposition solution and quality evaluation system (Software and Hardware) to measure alloy solderability with 99% accuracy.	
	University of Victoria , Victoria, BC <i>Graduate Teaching Assistant, Chemistry Department</i>	SEP 2021–present
	CHEM 347: Quantum Chemistry and Spectroscopy	FALL 2024
AWARDS & DISTINCTIONS	CHEM 361: Analytical Chemistry Laboratory	SPRING 2022
	CHEM 102: Chemical Reactivity Fundamentals	SPRING 2023
	CHEM 101: Fundamentals of Chemistry	FALL 2022, 2023, 2024
	University of Victoria Fellowship - Doctoral	July 2024 – Dec 2024
	Lewis J. Clark Memorial Fellowship, UVIC	Nov 2024
	Academic Achievement scholarship (GA-AA), UVIC	Sep 2021 – Sep 2024
	University of Victoria Graduate Award	Sep 2021 – June 2024
	Faculty of Graduate Studies (FGS), UVIC Travel Grant	July 2023
	Department of Chemistry, UVIC Travel Grant	May 2023
	Dean's List, University of Moratuwa, Moratuwa, Sri Lanka	2018–2020
	Best paper award, MERCon-IEEE , Moratuwa, Sri Lanka	July 2019

PUBLICATIONS

7. Yang, P., **Kumarasiri, A.**, & Dennis K. Hore (2024). Surface populations as a model for the distance dependence of the interfacial refractive index. *The Journal of chemical physics* (161, 054703)
6. **Kumarasiri, A.**, Yang, P., & Dennis K. Hore (2023). Second-Order Nonlinear Optics as an Orientation-Independent Probe of Molecular Environments at Interfaces. *The Journal of Physical Chemistry Letters* (14.19 : 4449-4453)
5. **Kumarasiri, A.**, Herath, H. S., Amarasinghe, D. A. S., & Attygalle, D. (2021). Effects of Current Density on the Solder Wettability of Nickel Electrodeposited Ni20Cr Alloy. *2021 Moratuwa Engineering Research Conference, IEEE* (pp. 160–164)
4. **Kumarasiri, A.**, Amarasinghe, D. A. S., & Attygalle, D. (2020). Surface Wettability Analysis of Nichrome Alloy Based on the Measurements of Sessile Droplet Contact Angles. *2020 Moratuwa Engineering Research Conference, IEEE* (pp. 160–164)
3. **Kumarasiri, A.**, Amarasinghe, D.A.S., & Attygalle, D. (2020). Development of a method to measure contact angles of sessile droplets to analyze and enhance the surface wettability of nichrome [Abstract]. *Materials Engineering Symposium on Innovations for Industry* (p. 20)
2. **Kumarasiri, A.**, Attygalle, D. and Amarasinghe, D. A. S. (2019). A contact angle based approach to improve the lead-free solder compatibility on nichrome alloy [Abstract]. *4th International Research Symposium on Pure and Applied Sciences* (p144)
1. **Kumarasiri, A.**, Attygalle, D., & Amarasinghe, D. A. S. (2019). Lead Free Solder Compatibility Improvement on Nichrome Alloy Through Contact Angle Modification. *2019 Moratuwa Engineering Research Conference, IEEE* (pp. 340–344)

CONFERENCE PRESENTATIONS

6. “Fundamental clues about interfacial environments can be obtained independent of the orientational distribution of molecules.” *12th International Conference on Advanced Vibrational Spectroscopy*. 30 AUG. 2023. Kraków, Poland. [O]
5. “Electronic Structure of para-Cyanophenol at the Air-Aqueous Interface from Vibrational Sum Frequency Generation Spectroscopy.” In *12th International Conference on Advanced Vibrational Spectroscopy*. 29 AUG. 2023. Kraków, Poland. [P]
4. “Second-Order Nonlinear Optics as an Orientation-Independent Probe of Molecular Environments at Interfaces.” *Canadian Chemistry Conference and Exhibition*. 6 JUNE. 2023. Vancouver BC, Canada. [O]
3. “Development of an Electrodeposition Method to Enhance the Solderability of Lead-Free Solder on Nichrome Alloy.” In *5th International Research Symposium on Pure and Applied Sciences, University of Kelaniya*. 26 NOV. 2020. Kelaniya, Sri Lanka. [O]
2. “Development of a Reliable Method to Quantify the Solderability of Lead-Free Solder on Nichrome Alloy.” *Annual Research Symposium of the Young Scientist Forum*. 13 NOV. 2020. Colombo, Sri Lanka. [O]
1. “A Contact Angle Based Approach to Evaluate the Solderability of Nichrome Alloy.” *Annual Sessions, Institution of Engineers of Sri Lanka*. 19 OCT. 2019. Colombo, Sri Lanka. [O]

[O] = oral presentation, [P] = poster presentation

COMMUNITY & LEADERSHIP

Treasurer, Optica & SPIE , UVic student chapters	DECEMBER 2024 - present
Education Volunteer, CSC 2023 , Vancouver, BC	JUNE 2023
Invited Speaker, Journal Club (MSE), University of Moratuwa, Sri Lanka	JULY 2022
Education Tech Blogger, (proactivegrad.com & econblend.com)	APRIL 2020 - present
Education Volunteer, Asia Pacific Conference (APC) - AIESEC , Sri Lanka	MAR 2018
Department Coordinator, EXMO 2017 , Moratuwa, Sri Lanka	APRIL 2017