

## Kanchana Chandrakanthan

Assistant Teaching Professor  
School of Molecular Sciences  
Arizona State University  
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### Professional Summary

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An enthusiastic chemist and teaching professional committed to inspiring the next generation of scientists through innovative instruction and mentorship.

### Educational qualifications

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- **Ph.D. in Chemistry, School of Molecular Sciences, Arizona State University, Tempe, AZ** (2019 August – 2024 February).  
GPA – 4.00
- **Bachelor of Science (Chemistry Special) University of Colombo, Sri Lanka** (2015 June – 2019 June)
- **Graduate Chemist, College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka** (2014 January – 2018 January)  
  
First Class Honors, GPA – 3.97
- Secondary Education  
Schools attended – Princeton International School, Sri Lanka  
Sussex College, Sri Lanka

### Teaching and Mentoring Experience

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- **Assistant Teaching Professor, School of Molecular Sciences, Arizona State University** (August 2024 – to date)  
**CHM 302 Environmental Chemistry (Online and iCourse)** Explores major environmental issues, problems, and solutions from analytical and chemistry perspectives.  
**CHM 114 General Chemistry for Engineers (large lecture immersion)** Chemical principles with emphasis toward engineering.  
**CHM 113 General Chemistry I (large lecture immersion)** Principles of Chemistry. Adapted to the needs of students in the physical, biological, and earth sciences.  
**CHM 116 General Chemistry II (large lecture immersion)** Continuation of CHM 113. Equilibrium theory, thermodynamics, kinetics, electrochemistry, nuclear chemistry, descriptive chemistry.

- **Mentoring: Second Barrett Honors Thesis Committee Member**, Barrett, The Honors College, Arizona State University.  
 Student: Sofia Sande. Thesis: “The Use of Music Therapy to Influence Neural Plasticity Mechanisms Underlying Symptom Reduction in Children with Autism Spectrum Disorder.”  
**Mentoring:** Supervised and mentored **53 students completing Barrett Honors College contracts** (August 2024– to date)
- **Graduate Teaching Assistant, School of Molecular Sciences, Arizona State University** (August 2019 – February 2024)  
**CHM 302 Lecture Course** Environmental Chemistry (**immersion**)  
**CHM 303 Laboratory Course** Environmental Chemistry (**laboratory**)  
**CHM 112 Laboratory Course** General Chemistry Laboratory for Majors II (**laboratory**)  
**CHM 113 Laboratory Course Principles of Chemistry.** Adapted to the needs of students in the physical, biological, and earth sciences (**laboratory**)  
**CHM 117 Recitation Course** General Chemistry for Chemistry and Biochemistry majors (**recitation**)
- **Teaching Assistant, Institute of Chemistry Ceylon, Sri Lanka** (2018 January-2018 August)  
 General Chemistry, Physical Chemistry and Inorganic Chemistry laboratory courses. Conducted tutorial sessions for undergraduate students, assisted the supervision of exams and seminar workshops conducted by the Institute.
- **Teacher in Science at Sussex College, Sri Lanka** (2013 – 2014) for Grades 6-9.

## Research Experience

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**Postdoctoral Research Scholar** in Herckes/Fraser Lab (2024 March - 2024 July)

### Research Projects Undertaken

Project Title: **Airborne microplastics in a suburban location in the Desert Southwest:**

**Occurrence and Identification Challenges**

Supervisor: Prof. Pierre Herckes

Project Title: **Spatial and temporal distribution of soil microplastics in Phoenix, including the surrounding areas of the Sonoran Desert**

Supervisor: Prof. Pierre Herckes

Project Title: **A method to distinguish soot and tire wear based on the thermal optical transmittance in Organic Carbon-Elemental Carbon (OC-EC) analyser**

Supervisor: Prof. Pierre Herckes

Project Title: **Monitoring microplastics in recreational surface waters: Temporal variation in the Salt River and occurrence in swimming pools**

Supervisor: Prof. Pierre Herckes

Project Title: **Wastewater Treatment Plants as Major Sources of Atmospheric PFAS and Microplastics.**

Supervisor: Prof. Pierre Herckes

**Research Assistant** in Herckes/Fraser Research Group, SMS, ASU (Spring 2024, Fall 2022, Spring 2022)

## Publications

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**Chandrakanthan, K.**, Fraser, M.P., Herckes, P., 2023. Airborne microplastics in a suburban location in the desert southwest: Occurrence and identification challenges. *Atmos Environ* 298, 119617. <https://doi.org/10.1016/j.atmosenv.2023.119617>

**Chandrakanthan, K.**, Fraser, M.P., Herckes, P., 2024. Microplastics are ubiquitous and increasing in soil of a sprawling urban area, Phoenix (Arizona). *Science of The Total Environment* 906, 167617. <https://doi.org/10.1016/j.scitotenv.2023.167617>

**Chandrakanthan, K.**; Fraser, M. P.; Herckes, P. Recreational activities as a major source of microplastics in aquatic environments. *Water Emerg. Contam. Nanoplastics* 2024, 3, 20. <http://dx.doi.org/10.20517/wecn.2024.40>

**Chandrakanthan, K.**, Fraser, M.P., Herckes, P., 2025. A method to distinguish soot and tire wear based on the thermal optical transmittance in organic carbon-elemental carbon (OC-EC) analyzer. (In preparation)

Ducruet, A.; Bowen, S.; Nisson, P.; Winkler, E.; Cisneros, O.; Maeda, T.; Maeda, H.; Kobayashi, H.; Fraser, M.; Lawton, M.; **Chandrakanthan, K.**; Nakano, Y.; Hashimoto, T.; Fraser, C.; Sato, H.; Wang, J.; Herckes, P.; Sato, H. Microplastic Exposure Exacerbates Post-Stroke Depression and Memory Impairment. *Stroke* 2026, 57. [https://doi.org/10.1161/str.57.suppl\\_1.DP222](https://doi.org/10.1161/str.57.suppl_1.DP222)

## Patents

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**K. Chandrakanthan**, M. Fraser, P. Herckes, Method to Identify and Quantify Tire Wear  
Pub.No: US2026/0071983 A1. Pub. Date: Mar.12, 2026

## Honors and Awards

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- **One of 12 faculty selected nationally, 2026 American Chemical Society (ACS) Community of Practice (CoP), a competitive year-long program** supporting faculty at bachelor's degree institutions in implementing green chemistry principles into their courses.

### Graduate School, Arizona State University

- **ASU Graduate and Professional Student Association (GPSA) Travel Grant**, for an Individual Travel Award for the ACS Spring 2024 Conference
- **2023-24 Graduate College Travel Award Q3** for the ACS Spring 2024 Conference
- **Distinguished Teaching Assistant award in 2023, Arizona State University**, School of Molecular Sciences, Tempe, AZ
- **Graduate College Q2 Travel Award 2022** for the 40th AAAR Annual Conference held in Raleigh, North Carolina
- **2021 CAP LTER** (Central Arizona-Phoenix Long-Term Ecological Research Program) **Summer Graduate Student Grant** supported by the **National Science Foundation** under grant nos. CAP IV (2): DEB-1832016, CAP III: DEB-1026865 and CAP II: DEB-0423704 (CAP-LTER)
- **Distinguished Teaching Assistant award in 2020, Arizona State University**, School of Molecular Sciences, Tempe, AZ

### Undergraduate Education

- **Shireen Jayasuriya Gold Medalist – (Valedictorian)** for the best overall performance in all parts of the Graduateship Examination
- **First in the Dean's List (2014-2018)** at the Institute of Chemistry, Ceylon.
- **Royal Society of Chemistry (Sri Lankan Section) Award – 2017 for the Best performance at the Levels 3 & 4 (Theory)** of the Graduateship Examination
- Prof. Leslie Gunathilake Award – 2017 for **Overall Excellence in Organic Chemistry**
- B.A. Jayasinghe Memorial Award – 2017 for **the third best performance at Chemistry Practicals**
- **Institute of Chemistry President's Scholarship -2017** for the **Best overall performance at Levels 1,2 and 3 of the Graduateship Examination**

### **Junior and Senior years**

- Pincock Prize 2017- **Best performance in Photo Chemistry**
  - Ms.Careen Manel Abeywardana Memorial Prize-2017 for the **Best performance in Natural Products Chemistry**
  - Dharmachandra & Thamarasa Gunawardhana Memorial Prize- 2017 for the **Best performance in Analytical Chemistry**
  - Mevan Pieris Prize - 2017 **Best performance in Polymer Chemistry and Technology**
  - N.M.S. Hettigedara Family prize 2017 - **Best Performance in Pharmaceutical and Medicinal Chemistry**
  - Lakshmi Award 2017- **Best performance in Chemistry in Gem Minerals and Synthetic Gem Minerals**
  - Dharmarathne Wasala Prize - 2017 **Best performance in Computational Chemistry**
  - E.G.Somapala prize - 2017 for **Best performance in Food Chemistry and Technology**
  - Deepa Sotheeswaran Gaschik Prize 2017- **Best performance in AgroChemicals**
  - K.G.Karunasena Memorial Prize 2017- **Best performance in Quantum Mechanics**
- **Sophomore year**
    - **Professor W. Pearlyn D Pereira Commemoration Trust Scholarship 2016- Second Best Overall Performance**
    - Professor. Samitha P. Deraniyagala Prize 2016 **Best Performance in Inorganic Chemistry**
  - **Freshman year**
    - **Nandawathie Jayaweera (Open) Memorial Scholarship for best overall performance 2015**
    - College of the Chemical Sciences Prize for the **Best performance in fundamentals of Physics for Chemists 2015**

- Emerine Fernando Memorial Prize for the **Best performance in Principles of Physical Chemistry 2015**
- Prof.and Mrs.S.Sotheeswaran prize **Best performance in Principles of Organic Chemistry 2015**
- Somawathie Mathew Memorial Prize **Best Performance in Biology for Physical Science Students 2015**
- College of Chemical Science Prize **Best performance in Analog and Digital Electronics 2015**

### Secondary Education (*selected awards listed*)

- Awarded **District Best Results in the G.C.E Ordinary Level Examinations – English Medium**
- Awarded the **Best Student of the Year Sussex College, Sri Lanka – 2009 and 2010.**
- **Awarded Distinction in Associated Board of the Royal Schools of Music (ABRSM) Western Music Theory and Practical (Piano) Musicianship, Grades 1–5**
- **Selected Participant to represent Sri Lanka as an Accordion Solo performer at the Cultural Festival - 2008, Kuala Lumpur, Malaysia**
- **Member of the Sussex College Netball Team; winners of the District Championships in the Inter-District Netball Tournaments over multiple years**

### Presentations and Conferences

- **Guest speaker presentation at ASU Prep Digital High School** on succeeding in chemistry courses at ASU, strategies for effective preparation, and potential career paths in the field of chemistry. April 22<sup>nd</sup>, **2025.**
- **Platform presentation at ACS (American Chemical Society) Spring 2024 Conference** on March 17 – 21 in New Orleans, LA on **Microplastics are ubiquitous in an urban environment in Phoenix, AZ.**
- **Guest Talk on Plastics and Microplastics: An emerging environmental concern in CHM 302 Fall 2023** Lecture course at Arizona State University
- **Poster presentation at the 25<sup>th</sup>Annual Central Arizona-Phoenix Long-Term Ecological Research Program All Scientists Meeting and Poster Symposium** held on January 13<sup>th</sup>, **2023** at ASU Skysong on **Spatial and temporal distribution of soil microplastics in Phoenix, including the surrounding areas of the Sonoran Desert.** Kanchana Chandrakanthan, Pierre Herckes, Arizona State University.

- **Platform presentation at AAAR 40th Annual Conference** held in Raleigh, North Carolina on **Airborne Microplastics in a Suburban Location in the Desert Southwest**. Kanchana Chandrakanthan, Pierre Herckes, Arizona State University, October 3<sup>rd</sup> -7<sup>th</sup>, 2022.
- **Poster presentation at the 24<sup>th</sup> Annual Central Arizona-Phoenix Long-Term Ecological Research Program All Scientists Meeting and Poster Symposium** held on March 25<sup>th</sup> 2022 at ASU Skysong on **Spatial and temporal distribution of soil microplastics in Phoenix, including the surrounding areas of the Sonoran Desert**. Kanchana Chandrakanthan, Pierre Herckes, Arizona State University
- **Guest Talk on Plastics pollution and Microplastics at ASU Prep Digital High School** March 3<sup>rd</sup>, 2022.
- **A talk on Plastics pollution, microplastics and their occurrence in CHM 302 Fall 2021** Lecture course at Arizona State University.
- **Poster presentation at AAAR 39th Annual Conference** held in Albuquerque, New Mexico on **Airborne Microplastics in a Suburban Location in the Desert Southwest**. Kanchana Chandrakanthan, Pierre Herckes, Arizona State University, October 18<sup>th</sup>-22<sup>nd</sup>, 2021.
- **Presentation on the Distribution and occurrence of airborne microplastics in Tempe, AZ to Maricopa County Air Quality Department (MCAQD)** June 29<sup>th</sup> 2021

### Professional Development and Service

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- **Member of the College of Liberal Arts and Sciences' Standing Committee on the Quality of Instruction, Arizona State University. (Fall 2025- Spring 2028).**
- **Committee Member of Review of Teaching Assistants and Instructors, School of Molecular Sciences, Arizona State University (August 2021- to date).**
- **Faculty Advisor for the student-led club: American Medical Women's Association (AMWA), Arizona State University (Fall 2025- to date).**
- **Committee Member of the 2026 American Chemical Society (ACS) Community of Practice (CoP), supporting faculty at bachelor's degree institutions in implementing green chemistry principles into their courses.**
- **Peer Reviewer for research manuscripts** in Atmospheric Environment, Environmental Monitoring and Assessment, Atmospheric Pollution Research, NANO Life, Science of the Total Environment.
- **Member of the search committee for the faculty position: Assistant Teaching Professor in General Chemistry at Arizona State University (Spring 2025).**

- **Invited Guest Speaker presentation at ASU Prep Digital High School** on succeeding in chemistry courses at ASU, strategies for effective preparation, and potential career paths in the field of chemistry. April 22<sup>nd</sup>, **2025**.
- **Institutional Partner member of AWIS (Association for Women in Science).**
- **Invited Guest Talk on Plastics and Microplastics:** An emerging environmental concern in CHM 302 Fall 2023 Lecture course at Arizona State University.
- **Invited Guest Talk on Plastics pollution and Microplastics** at ASU Prep Digital High School March 3<sup>rd</sup>, 2022.
- **Invited Guest Speaker at Institute of Chemistry Ceylon, Sri Lanka** on career paths in the field of chemistry and drafting applications for Graduate School, **2022**.
- **Associate member of the Institute of Chemistry, Ceylon** (Membership No:2688A)
- **Steering Committee Member of the Alumni Association of College of Chemical Sciences, Institute of Chemistry Ceylon**
- **Lead Organizer, Toxicology and Narcotics Exhibit, Chemex 4, the largest chemistry educational exhibition and trade fair in Sri Lanka**, organized by the College of Chemical Sciences (**2017**).
- Appointed **Senior Prefect** and subsequently **Head Prefect, Sussex College, Sri Lanka**.

### Interviews and News Coverage of Research

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- 2024 New ASU research shows swimwear is a surprising source of microplastics ASU press release NPR-KJZZ segment/interview. <https://www.kjzz.org/science/2024-10-04/new-asu-study-links-microplastic-pollution-to-swimwear>
- 2024 ASU Study Reveals Swimsuits as Major Source of Microplastic Pollution. <https://www.onegreenplanet.org/environment/asu-study-reveals-swimsuits-as-major-source-of-microplastic-pollution/>
- 2024 New ASU Research Shows Swimwear is a Surprising Source of Microplastics <https://www.aau.edu/research-scholarship/featured-research-topics/new-asu-research-shows-swimwear-surprising-source>
- 2024 Microplastics in the Desert: A Growing Concern in Phoenix Soils

Article in Spectroscopy on our work on microplastics in local soils.

<https://www.spectroscopyonline.com/view/microplastics-in-the-desert-a-growing-concern-in-phoenix-soils>

- 2024 New ASU research shows swimwear is a surprising source of microplastics.  
<https://news.asu.edu/20240927-environment-and-sustainability-new-asu-research-shows-swimwear-surprising-source>
- 2023 News article on research findings from Spatiotemporal distribution of soil microplastics in the Desert Southwest <https://news.asu.edu/20231027-discoveries-hidden-threat-lurking-phoenix-soil>
- 2023 Interview on 12News on Microplastics in the terrestrial environment  
<https://www.12news.com/article/news/local/valley/arizona-researchers-finding-higher-concentrations-of-microplastics-in-the-valley/75-240fba9d-1b94-4e38-8927-de4cf1318754>
- 2021 Overview of research in the Fraser/Herckes Research group at the School of Molecular Sciences, Arizona State University.  
<https://www.youtube.com/watch?v=VXPRI6Yobu8>