

# Kanchana Chandrakanthan

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## Personal statement

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An enthusiastic chemist who constantly strives to be a better person and a teacher, and comprehends that hard work and dedication are the key ingredients of success.

## Educational qualifications

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- **PhD in Chemistry, School of Molecular Sciences, Arizona State University, Tempe, AZ** (2019 August – 2024 February). **Defended thesis on February 20<sup>th</sup>.**  
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** (2014 Jan – 2018 Jan)  
  
First Class Honors, GPA – 3.97
- Secondary Education  
Schools attended – Princeton International School – Ratnapura, Sri Lanka  
Sussex College – Ratnapura, Sri Lanka

## Teaching Experience

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- **Assistant Teaching Professor, School of Molecular Sciences, Arizona State University**  
(August 2024 – to date)
- **Graduate Teaching Assistant, Arizona State University, Tempe, AZ** for  
**CHM 117 Recitation Course** General Chemistry for Chemistry and Biochemistry majors (Fall 2019),  
**CHM 113 Laboratory Course** Principles of Chemistry. Adapted to the needs of students in the physical, biological, and earth sciences. (Spring 2020 and Fall 2020),  
**CHM 112 Laboratory Course** General Chemistry Laboratory for Majors II (Spring 2021),  
**CHM 302 Lecture Course** Environmental Chemistry (Fall 2021 and Fall 2023),  
**CHM 303 Laboratory Course** Environmental Chemistry (Spring 2023)

- **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, Ratnapura, 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 2022, Fall 2022, Spring 2024)

Undergraduate Project Title: Sorptive Removal of Rhodamine B dye from an aqueous solution using Douglas Fir Biochar

Supervisors: Dr. Sameera R. Gunethilake, Dr.M.N. Kaumal

**Peer Reviewer for manuscripts** in Atmospheric Environment, Environmental Monitoring and Assessment, Atmospheric Pollution Research, NANO Life, Science of the Total Environment.

## 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., 2024. A method to distinguish soot and tire wear based on the thermal optical transmittance in organic carbon-elemental carbon (OC-EC) analyzer. (In preparation)

## Patents

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Provisional patent M24-219P

K. Chandrakanthan, M. Fraser, P. Herckes, P. Westerhoff, Method to Identify and Quantify Tire Wear provisional US patent application filed #63/692,501 on 9/9/2024

## Honors and Awards

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### Graduate School, Arizona State University

- **Distinguished Teaching Assistant award in 2020, Arizona State University, School of Molecular Sciences, Tempe, AZ**
- **Distinguished Teaching Assistant award in 2023, Arizona State University, School of Molecular Sciences, Tempe, AZ**
- **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)

- **Graduate College Q2 Travel Award 2022** for the 40th AAAR Annual Conference held in Raleigh, North Carolina
- **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

## **Undergraduate Education**

- **Shireen Jayasuriya Gold Medalist – (Valedictorian)** for the best overall performance in all parts of the Graduateship Examination
- **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**

### **Presentations and Conferences**

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- **Guest Talk on Plastics and Microplastics: An emerging environmental concern in CHM 302 Fall 2023** Lecture course at Arizona State University
- **A talk on Plastics pollution, microplastics and their occurrence in CHM 302 Fall 2021** Lecture course at Arizona State University
- **Guest Talk on Plastics pollution and Microplastics at ASU Prep Digital High School** March 3<sup>rd</sup> 2022

- **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
- **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
- **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
- **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 13th, 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
- **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
- **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.
- **Platform Presentation at AAAR Annual Meeting 2024, Albuquerque, NM, October 21-25, 2024** on Wastewater Treatment Plants as Major Sources of Atmospheric PFAS and Microplastics, AAAR Annual Meeting 2024, Albuquerque, NM, October 21-25, 2024.  
A. McClure, K. Chandrakanthan, P. Westerhoff, M. Fraser and P. Herckes

## 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 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>
- 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>

### Service and Extracurricular Activities

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- **Committee Member of Review of Teaching Assistants and Instructors, School of Molecular Sciences, Arizona State University.**
- **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**
- **Institutional Partner member of AWIS (Association for Women in Science)**
- **Passed with Distinction – ABRSM Western Music theory and Practical (Piano) Musicianship (Grades 1– 5) Examinations**
- **Stall In-Charge of the Toxicology and Narcotics Stall at Chemex 4, Educational Exhibition and trade fair organized by the CCS – 2017**
- **A member of the Sussex College Netball Team** and won the District Championships in the Inter District Netball Tournament 2009
- **A member of the Sussex College Western Music Band**
- Awarded the **Best Student of the Year Sussex College, Ratnapura, Sri Lanka – 2009, 2010**
- Appointed as a **Senior prefect** of the College and consequently the **Head Prefect of Sussex College** 2009- 2010 and 2010-2011
- **First Runners up in the FATHOM Oratory Competitions** organized by the English Oratory and Debating Association FHS, Ratnapura – 2009

- **Represented SL as an Accordion Solo performer at the Cultural Festival - 2008, Kuala Lumpur, Malaysia**
- **Awarded Certificate of Honors at the Examinations conducted by Colombo Academy of Language Skills and Dramatic Art – 2005, 2006**
- **Participated in AURA talent show of the College of Chemical Sciences (2015 – 2017)**