

CURRICULUM VITAE



Dr. Sheena Anne Henson Garcia

Postdoctoral Fellow

Department of Chemical and Biological Engineering
The Hong Kong University of Science and Technology (HKUST)
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EDUCATION

Ph.D. in Chemical and Biological Engineering

2022, *The Hong Kong University of Science and Technology (HKUST), Hong Kong*

- Hong Kong Ph.D. Fellowship Award Recipient/ Excellent Research Award
- Served as Graduate Representative
- Delivered a keynote speech at the 2022 School of Engineering Graduation Ceremony

B.S. in Chemistry (Cum Laude)

2017, *Ateneo de Manila University, Philippines*

- Recipient of the Program Award for outstanding academic performance and active participation in extracurricular activities
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PROFESSIONAL EXPERIENCE

Postdoctoral Fellow

2022 – Present, *HKUST, Hong Kong*

- Research Talent Hub (RTH) Recipient Innovation and Technology Fund (ITF)
- Conduct cutting-edge research and experiments in chemical and biological engineering
- Lead academic paper writing and mentor postgraduate researchers
- Collaborate with faculty on grant proposals and project management

Team Leader/Chemist I

2017 – 2018, *Philippine Institute of Pure and Applied Chemistry, Philippines*

- Managed a team of chemists and technicians in quality control and analysis
 - Delivered solutions to industries, government, and private clients
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PUBLICATIONS

- **S. A. Garcia**, S. Taghipour, D.C. Mostrales, P. Ma, Y. Wu, S. Chen, W. Han, K.L. Yeung, “Uptake and transpiration of solid and hollow SiO₂ nanoparticles by terrestrial plant (*Apium Graveolens* var. *secalinum*),” *Chemosphere*, vol. 372, p. 144100, Jan. 2025, doi: [10.1016/j.chemosphere.2025.144100](https://doi.org/10.1016/j.chemosphere.2025.144100)
- T. A. Dela Peña, R. Ma, Y. Luo, Z. Xing, Q. Wei, Y. Hai, Y. Li, **S. A. Garcia**, K. L. Yeung, T. Jia, K. S. Wong, H. Yan, G. Li, M. Li, J. Wu, “Manipulating the Charge Carriers Through Functionally Bridged Components Advances Low-Cost Organic Solar Cells with Green Solvent Processing”. *Adv. Energy Mater.* 2023, 2303169. <https://doi.org/10.1002/aenm.202303169>

- T. A. Dela Peña, R. Ma, Y. Luo, Z. Xing, Q. Wei, J.I. Khan, R.M. Young , Y. Hai, **S. A. Garcia**, X. Zou, Z. Jin, F.L. Ng, K. L. Yeung, D. F. Swearer, M.R. Wasielewski, J. Wang, H. Cha, H. Yan, K.S. Wong, G. Li, M. Li, J. Wu, “Interface property–functionality interplay suppresses bimolecular recombination facilitating above 18% efficiency organic solar cells embracing simplistic fabrication,” *Energy Environ. Sci.*, 2023,16, 3416-3429.
<https://doi.org/10.1039/D3EE01427D>
- **S. A. Garcia***, C. R. Yeung*, K. L. Yeung. “Impact of Silica Nanoparticle Size and Concentration on the Development, Growth, Health, and Transpiration of *Salvia hispanica*”. (Chemosphere, **Under Review**, January 2025)
- T. A. Dela Peña, Y. Luo, Y. Hai, R. Ma, A. Dolan, S. Khanmohammadi, J. M. de la Perrelle, Q. Wei, Y. Li, L. Jia, **S. A. Garcia**, K. L. Yeung, K. K. Friedman, L. Titova, T. Jia, H. Yan, T. Kee, W. Zhao, W. Gao, M. Li, “Role of Intermixed Phase Charge-Lattice Coupling in Leveraging 20% Efficient Organic Solar Cells”. (JACS, **Under Revisions**, Dec. 2024)
- T. A. Dela Peña*, W. B. Tarique*, **S.A. Garcia***, R. Ma, Q. Wei, R. Li, A. H. Howlader, M. J. Pasciolco, S. S. Dipta, Y. Luo, Y. Hai, Y. Li, Y. Chan, K.L. Yeung, H. Yu, L. Yu, M. Li, H. Yan, T. Jia, A. Uddin, J. Wu, “Optimizing the Stability and Process Reliability of Organic Solar Cell Devices Modified with Solid Additives” (Small, **Submitted**, January 2025).
- **S. A. Garcia**, F. F. Budihardjo, S. Taghipour, N. Wongsrisujarit^a, H. Yip, P. Ma, Y. Wu, S. Chen, W. Han, K.L. Yeung “Assessing the Toxicological Impact of Silver Nanoparticles and Titania Nanotubes on Brain Health: Insights from In Vivo Studies”. (ACS Nano Letters, **In preparation**, February 2025)
- **S. A. Garcia**, F. F. Budihardjo, S. Taghipour, N. Wongsrisujarit^a, H. Yip, P. Ma, Y. Wu, S. Chen, W. Han, K.L. Yeung “Comparative Liver Toxicity Assessment of Silver Nanoparticles, Titania Nanotubes, and Silver-Doped Titania Nanotubes”. (**In preparation**)
- **S. A. Garcia**, F. F. Budihardjo, S. Taghipour, N. Wongsrisujarit^a, H. Yip, P. Ma, Y. Wu, S. Chen, W. Han, K.L. Yeung “Comparative Kidney Toxicity Assessment of Silver Nanoparticles, Titania Nanotubes, and Silver-Doped Titania Nanotubes”. (**In preparation**)
- **S. A. Garcia**, Z. Liu, R. Bonifacio, R.M. Ibarra, P. Ma, Y. Wu, S. Chen, W. Han, K.L. Yeung , “Exploring the Biological Effects and Therapeutic Potential of Iron Nanoparticles: A Comparative Study of Fe₃O₄, Fe@C, and Fe@C-FA in Mice Models”. (**In preparation**)
- M. Li, J. Li, **S.A. Garcia**, M.S. Pamudji, W. Han, K.L. Yeung, “Exploring the Electrochemical Oxidation Treatment of Perfluorooctanoic Acid: Performance and Mechanisms”. (**In preparation**)
- **S. A. Garcia**, K. Orteza, K.L. Yeung , “Uptake of CeO₂ and CeO₂ @SiO₂ nanoparticles in Celery (*Apium graveolens* var. *secalinum*) and their toxicity”. (**In preparation**)
- **S. A. Garcia**, Z. Liu, T.T. Nguyen, K.L. Yeung, “Uptake of Fe₃O₄ and Fe₃O₄ @SiO₂ nanoparticles in Celery (*Apium graveolens* var. *secalinum*) and their toxicity”. (**In preparation**)
- A. Afanou, Ø. P. Haugen, B. Usta, S. Boland, **S. A. Garcia**, A. Katsumiti, A.Ramsperger, L. M. Camassa, V.M. Arribas, S. Michelini, M. Zande, I. Polanco, M.R. Garcia, “Activation of TLR2 & 4 – HEK 293 reporter cell assay”. (**In preparation**)
- S. Taghipour, N. Wongsrisujarit, **S.A. Garcia**, B. Ataie-Ashtiani, K. L. Yeung “Nanoconfinement of Fe (III) in titanate nanotube with enhanced photoresponse towards visible light for emerging pollutant abatement”, (**In preparation**)

AWARDS & HONORS

- **2024**: Anita Conti Fellowship
- **2023**: ACS Poster Presentation Award (Toxicology Division)
- **2018**: Hong Kong Ph.D. Fellowship Award/ Excellent Research Award

CONFERENCES

- S. Taghipour, N. Wongsrisujarit, S.A. Garcia, M.J. Pasciolco, B. Ataie-Ashtiani, K. L. Yeung “Fabrication of Fe-doped TiO₂ nanotubes (Fe/TiNT) for pollutant removal under visible light irradiation,” 18th Icc - International Congress On Catalysis “Roots And Wings For A Better World”, Lyon, France, July 14-19, 2024.
- S. A. Garcia, and K.L. Yeung, “Effects of Silver Nanoparticle Exposure on Mouse Organs, Tissues, and Behavior: Implications for Human Health,” European Materials Research Society (E-MRS) Spring Meeting 2024, Strasbourg, France May 27-31, 2024.
- S. A. Garcia, and K.L. Yeung, “Biodistribution and Transpiration of Carbon Dots in Celery: Insights into Uptake and Accumulation Mechanisms,” European Materials Research Society (E-MRS) Spring Meeting 2024, Strasbourg, France May 27-31, 2024.
- S. A. Garcia, L. Zhang and K.L. Yeung, “Impact of Iron-based Nanoparticles on Oxidative Stress and Antioxidant Responses in Mice Organs,” European Materials Research Society (E-MRS) Spring Meeting 2024, Strasbourg, France May 27-31, 2024.
- L.A.L. Yasis, S. A. Garcia, and K.L. Yeung, “Antimicrobial polymer-based coating against non-enveloped MS2 bacteriophage: virucidal efficiency and potential inactivation mechanism,” 268th American Chemical Society National Meeting & Exposition, Louisiana, USA, March 17-21, 2024.
- S. A. Garcia, and K.L. Yeung, “Exploring the Transport, Transformation, and Fate of 10nm and 20nm UiO-66-NH₂ Nanoparticles in Celery Plant: A Study on Human Health and the Environment,” American Chemical Society Fall 2023 National Meeting & Exposition, San Francisco, California, USA, Aug 13-17, 2023.
- S. A. Garcia, L. Zhang, and K.L. Yeung, “Investigation of Transportation of Superparamagnetic Iron Oxide Nanoparticles and SPIONs Coated with Silica in Celery Plants and Their Cytotoxicity,” American Chemical Society Fall 2023 National Meeting & Exposition, San Francisco, California, USA, Aug 13-17, 2023.
- S. A. Garcia, D.C. Mostrales, S. Taghipour, and K.L. Yeung, “Investigating the Cell Toxicity Difference Between 10nm and 20nm Filled and Hollow Amorphous Silica Nanoparticles,” American Chemical Society Fall 2023 National Meeting & Exposition, San Francisco, California, USA, Aug 13-17, 2023.
- S. A. Garcia, and K.L. Yeung, “Evaluating nanomaterial absorption and biodistribution in Celery (*Apium graveolens*)” American Chemical Society Fall 2022, USA, 23-25 Aug 2022.
- S. A. Garcia, C. Montealegre, and K.L. Yeung, “Evaluation of Nano-Metal Organic Frameworks Safety through Transpiration and Translocation in Celery (*Apium graveolens*),” American Institute of Chemical Engineers 2019 Annual Meeting, Orlando, Florida, USA, Nov 10, 2019.

INTERNATIONAL EXPOSURE

2024

- *Anita Conti Sustainable Innovation Fellowship*: Conducted research at Université Paris Cité on the PlasticsFate project (France).
- *Japan Youth Summit*: Presented award-winning innovative ideas on sustainable futures (Osaka, Japan). Awarded 2nd best innovation idea.

2022

- *Rising Stars Women in Engineering Workshop*: Participated in workshops for academic leadership (UNSW, Sydney, Australia).

2019

- *Ewha Luce International Seminar*: Focused on global leadership in STEM (Korea).
- *AOTULE Conference*: Presented research on sustainable development goals (Tokyo, Japan).

2018

- *HKUST SENG Elite Summer Camp*: Engaged in academic and leadership training (Hong Kong).

SEMINARS & WORKSHOPS

- **2024**: "*Investigating Nanoparticle Safety: Uptake in Plants, In Vivo, In Vitro Studies, and Implications for Health Risks*", Université Paris Cité, Paris, France
 - **2022**: "*Silica Nanomaterials Discovered To Undergo Transpiration In Celery*" *The Rising Stars Women in Engineering Workshop*, University of New South Wales (UNSW), Sydney, Australia
 - **2019**: "*Investigation of Nanomaterial Safety*", Asia-Oceania Top University League on Engineering (AOTULE), Tokyo, Japan
 - **2019**: "*Small But Terrible: Bio-Nanomaterials*", Ewha Luce International Seminar, Korea (25 Jun, Oral Presentation)
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LICENSES & CERTIFICATIONS

Licensed Chemist

2017 – Present, Integrated Chemists of the Philippines

- Successfully passed the Chemistry Licensure Examination (October 2017)
- License renewed triennially

Responsible Conduct of Research

2022 – 2027, CITI Program

- SENG - Staff