DR. LUDOVIC DUMEE (LUDO)
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DATE OF BIRTH: 09/12/1984
NATIONALITIES: FRANCE (BY BIRTH) AUSTRALIA (NATURALIZED)

A/PROF. ADVANCED SEPARATION MATERIALS
DEPARTMENT OF CHEMICAL ENGINEERING – KHALIFA UNIVERSITY
RESEARCH AND INNOVATION CENTER ON 2D MATERIALS (RIC2D) – DECARBONIZATION LEAD

"Leading innovation in separation and support technological translation in materials engineering and process intensification for resource recovery and water management."

1. Career summary and impact statement

Dr. Ludo Dumée has been actively working over the past 15 years, towards designing innovative separation, desalination and purification systems based on novel nano-porous materials. Ludo believes that this can only be achieved through joint collaborations between the Industry, Academia and Governmental agencies, and he therefore decided to focus his research and career at the interface of these worlds. Ludo received multiple prizes at national and international conferences and for his contributions to the fields of nano-structured material fabrication and membrane science.

Despite being a young researcher who only **graduated his PhD in May 2012**, Ludo has published over 220 research papers, including over 160 in Q1 and recognized journals in various fields including engineering, materials science and surface physico-chemistry. Ludo's work has also been remarquably cited since his first publication in 2010 and he has an **H index of 49, including 12 publications cited over 100 times** since 2010, for a total of over >8400 citations.

Ludo has been successful since 2012-2013 to gather **over US$20,000,000** of direct cumulated funding in Australia and the United Arab Emirates from both internal and national competitive funding schemes as well as from direct funding and consulting from industry partners. In 2017 he was part of the successful team awarded an Australian Research Council (ARC) Industry Transformation Research Hub (ITRH) entitled "Energy Efficient Separation" and a 2018 ARC Discovery Early Career Researcher Award (DECRA) fellowship. He secured since joining Khalifa University several large research and R&D projects, including a 2.5 M USD grant from the Executive Affair Authority (EAA) on Atmospheric Water Generation, a USD 400,000 grant with the Abu Dhabi Food Security Agency (ADFSA) to develop in-land desalination and brine valorization technologies for Abu Dhabi, a USD300,000 grant from the Emirates Nuclear Energy Corporation (ENEC) on ant-fouling surfaces development for large-scale water intake, as well as a joint Kingdom of Saudi Arabia (KSA) – United Arab Emirates (UAE) research fund (USD 250,000) on microplastics remediation from wastewaters and to lead collaborative projects between the University of Manchester and Khalifa University across the RIC2D center, on graphene for water technologies (4M USD).

His work and contributions were recognized domestically and internationally and he received the 2021 Science Award from the Membrane Society of Australasia (MSA) for his contribution on the development of healthcare materials and pioneering work on microplastics remediation as well as the development of graphene membranes. He further received the honor of best PhD student in 2011 and was awarded a citation from Victoria University Vice-Chancellor in June 2012, as well as the award of best Early Career Researcher through the Smart Geelong Network (2014) for his work on separation materials. In 2016, he received at Deakin University the Vice Chancellor award for Best Ideas in the Category ECR for the merit of his research efforts. **Ludo was also promoted to co-Editor in Chief (announcement in hyperlink) of the Journal of Water Process Engineering (Elsevier, Q1, IF 7), starting effective 01/11/2023.**

He is the proud **Principal Supervisor of 7 postgraduate students as well as co-supervisor of 8 postgraduate students primarily at** Deakin University and Khalifa University. He led over 12 Master students and 15 PhD students to completion till date. His leadership was recognized internationally, and he held a **Chair on "Advanced Characterization of Separation Materials" at the ENSCM**, Université de Montpellier (FRANCE) until December 2021. In addition, he held a **Stream Leader position between Deakin University and TERI**, through the strategic Deakin-TERI research Center in New Delhi (India) on Nano-enabled Water Purification and Sensing. He was also appointed from September 2021 until March 2023 as Theme lead on CO2 utilization within the Research and Innovation Center on CO2 and Hydrogen (RICH center) at Khalifa University, leading activities related to direct air capture and conversion as well as brine and waste management for CO2 valorization to products.

2. ***Academic Education***

2012 - 2008	**PhD candidate** at the Institute for Sustainability and Innovation at Victoria University and with the CSIRO Materials Science and Engineering
Melbourne, **AUSTRALIA**	The project focused on fabricating, characterising and testing membranes for Membrane Distillation (MD) and gas adsorption by using Carbon Nanotube (CNTs) unique properties (large porosity, low thermal conductivity in assemblies and high hydrophobicity) to process enhanced performance membranes
2007 - 2004	**Masters in Research and Engineering**
Mulhouse, **FRANCE**	(i) Master of science on Mechanics and Chemistry of Fibres at the University of Haute Alsace
	(ii) Master of engineering at the Ecole Nationale Supérieure d'Ingenieur de Sud Alsace on technical composite materials and surface finishing
2004 to 2002 Paris, **FRANCE**	Intensive scientific lectures for preparation of French National Engineering School contest (top 15% nationwide). PCSI/PC (Fundamental Mathematics, Physics and Chemistry) at Lycée Jean-Baptiste Say and Lycée Carnot. Majors were organic chemistry, mathematics and applied physics
June 2002	French Baccalaureate (A level) in mathematics, physics and chemistry with Honours (top 5% nationwide)

3. Employment history in chronological order

January 2011 to May 2012 Victoria, **AUSTRALIA**	**Research Associate (postdoctoral level) at the CO2CRC** (Cooperative Research Centre for Greenhouse Gas Technologies) **- University of Melbourne** in the Department of Chemical and Biomolecular Engineering, Research work on Carbon Capture and Sequestration. Major project on the reclamation of solvents contaminated during acid gas (CO_2) capture. Purification of ethanolamine/water mixtures with commercially available electrodialysis and nanofiltration membranes and selective removal of heat stable salts contaminants; Study on the impact of the process parameters on the removal efficiency; rig design; characterisation of binary solutions and focus on membrane ageing.
May 2012 to December 2014 Victoria, **AUSTRALIA**	**Cooperative Research Network Fellow** Cooperative Research Network (CRN) – funded by the Australian Ministry of Industry and Research, Research fellow at the Institute for Frontier Materials – Deakin University and the Institute for Sustainability and Innovation at Victoria University Main Research focused on the fabrication of novel porous metal-based membranes for liquid purification; the target is to produce fouling resistant membranes and to use the unique thermal and electrical properties of metals to drive diffusion. Integration of metal salts and nano-particles into polymeric and inorganic nano-templates (electro-spun nano-fibres; silica nano-spheres).
January 2015 to April 2018 Victoria, **AUSTRALIA**	**<u>Alfred Deakin Fellow</u> – Deakin University, Institute for Frontier Materials** Main Research focused on the coalescence of metal and metal oxide nano-particles to form nano-porous metal frameworks with enhanced plasmonic, catalytic and photo-catalytic properties for application in wastewater treatment and mixed solvent separation **<u>Victoria Fellowship 2018</u>** August – December 2018 – CNRS – Institut Europeen des Membranes (Montpellier, France) – Project on Atomic Layer Deposition of Metal membranes for catalytic membrane reactor design – Prof. David Cornu **<u>Stream Leader – Deakin – TERI initiative</u>** August 2016 to August 2018 – Stream Leader of the "Nano-enabled water treatment and sensing" stream of the strategic partnership between Deakin University and TERI at the Nano-BioTech Center (India). **<u>Academic Study Leave 2015-2016</u>** September 2015 to November 2015 – **Ecole Normale Superieure Paris**. Top Engineering school in France. Sabbatical visit within Prof. Yong Chen's group on the design of microfluidics devices to reclaim

	metal ions and nanoparticles in solution November 2015 to February 2016 – **ETH Zurich**. Top Swiss University. Sabbatical visit within Prof. Ralph Spolenak's group in nano-metallurgy to investigate the Rutherford Backscattering technique for the characterization of 2D metal thin films.
May 2018 to August 2020 Victoria, **AUSTRALIA**	**ARC DECRA Senior Research Fellow – Deakin University, Institute for Frontier Materials** **(Associate Prof. Equivalent in U.S. system)** Advanced Separation Materials Laboratory Head, Research focused on advanced separation materials platform and processes for liquid and gas purification.
December 2018 to December 2021 **FRANCE**	**Visiting Professor – ENSCM, France** Recipient of the "Advanced nanostructured membrane materials for environmental remediation" chair at the Ecole Nationale Superieure de Chimie de Montpellier
August 2020 to July 2023 **AUSTRALIA**	**Honorary Senior Research Fellow – Deakin University** Recipient of an honorary research position to support the development of international relationships with Deakin University, across the Middle East. Support to existing projects and students.
August 2020 to date Abu Dhabi, **(UAE)**	**A/Professor of Separation Materials – Khalifa University** Department of Chemical Engineering September 2021- April 2023: Theme lead (CO_2 utilisation) of the RICH (Research and Innovation Center on CO2 and Hydrogen); Faculty Member of RICH September 2022 – present: **Decarbonization Lead** and **Academic advisory board member** of the RIC2D center (Water Thrust) and since January 2023 Faculty Laboratory Custodian in charge of high-end equipment evaluation and selection (budget 15M USD) and in charge of the master plan for the new laboratory retrofitting; Research focus on (i) Resource Recovery and valorisation from bio-effluents and liquid waste streams (brines, spent batteries, industrial effluents), (ii) Remediation of emerging micropollutants (microplastics, PFAS) and water treatment, (iii) 2D based materials for cost-effective separation

4. Teaching activities

Course management and allocation at Khalifa University.

Since his appointment at Khalifa University in Fall 2020, he has taught courses at both undergraduate, MSc and PhD levels, including CHEG232 (Fluid Mechanics with 2 sessions in Fall 2020, 1 session in Spring 2021, 1 session in Spring 2022 and 2 sessions in Fall 2023), CHEG380 (Introduction to Polymer Science with 1 session in Fall 2021 and 2 sections in Spring 2023), CHEG658 (Polymer Properties and Processing with 1 section in Spring 2022), CHEG361 (Hydrogen safety with 2 sections in Fall 2022) and CHEG 381 (Membrane Technologies with 1 section at PhD level). He has therefore taught to date 5 different courses and redeveloped entirely the CHEG232 and CHEG380, while developed from scratches CHEG658 and CHEG361.

He also volunteered to teach Academic Writing to postgraduate students at Khalifa University through the Center for Teaching and Learning for 8 consecutive semesters, engaging across a 10 week program with MSc and PhD students starting their postgraduate degrees. The lectures were focused on critical challenges related to writing, review design and formulation, impact statement within papers and cover letters, and ethical challenges faced by academics. Practical sessions of writing were designed to provide one to one feedback to the students.

Details about his teaching philosophy and engagement may be provided through a teaching statement.

5. *Publication and bibliographic record*

Total as of 04/12/2023 – 8440 citations. H index of 49 and I-10 index of 142. Citations updated from Google Scholar:

http://scholar.google.com.au/citations?user=LScTEtcAAAAJ&hl=en

Online full profile at:

https://www.researchgate.net/profile/Dumee_Ludovic/

(i) Scholarly and Edited Book

1. **Dumée**, L. F., *Carbon nanotube membranes for water purification and gas adsorption*; Lambert Academic Publishing (LAP), Saarbrucken - Germany – 2012, ISBN: 978-3-659-17363-9

2. **Dumée**, F. Ludovic, Mohtada Sadrzadeh, Mohammad Mahdi A. Shirazi, Green Membrane Technology Towards Environmental Sustainability, Elsevier, 2023, 9780323951654

(ii) Scholarly book chapters

3. Mohammad Mahdi A. Shirazi, **Ludovic F. Dumée**, Mohtada Sadrzadeh, An introduction to green membrane technology, Chapter 1, Green Membrane Technology Towards Environmental Sustainability, Elsevier, 2023

4. Andrea Merenda, Priyanka Kumari, **Ludovic F. Dumée**, Adam F. Lee, Karen Wilson, Stimuli-responsive catalytic membrane reactors: current challenges and future outlook in water treatment technologies, Chapter 10, Green Membrane Technology Towards Environmental Sustainability, Elsevier, 2023

5. Hind Yaacoubi, **Ludovic F. Dumée**, Sustainable organic solvent nanofiltration membranes, Chapter 17, Green Membrane Technology Towards Environmental Sustainability, Elsevier, 2023

6. **Ludovic F. Dumée**, Mohtada Sadrzadeh, Mohammad Mahdi A. Shirazi, Perspectives on green membrane technology, Chapter 20, Green Membrane Technology Towards Environmental Sustainability, Elsevier, 2023

7. Sana Eid, Ahmed Gulzar, Ali Al Najjar, Gabriele Scandura, Twinkle Paul, Dinesh Shetty, Hassan Arafat, Georgios N. Karanikolos, **Ludovic F. Dumée***, Covalent Organic Frameworks-Based Membranes and Adsorbents for Water Treatment and Gas Separation, Covalent Organic Frameworks, 1st Edition (2022), Taylor and Francis

8. **Ludovic F. Dumee***, Circular materials—An essay on challenges with current manufacturing and recycling strategies as well as on the potential of life cycle integrated designs, Edition: First 2021 in Circular Economy and Sustainability, Volume 2, Chapter 21

9. Shafali Garg, Pankaj Kumar, Vandana Mishra, **Ludovic F. Dumée**, Radhey Sharma, Environmental menace of pharmaceutical drug diclofenac and its redressal, Environmental Health and Society Edition: First (2021) Chapter: 17

10. Elise des Ligneris, Lingxue Kong, **Ludovic F. Dumée***, Nanofibers for Membrane Applications, Handbook of Nanofibers, Springer, 2018

11. Anbharasi Vanangamudi, Xing Yang, Mikel C. Duke, **Ludovic F. Dumée***, Nanofibers for water treatment, Handbook of Nanofibers, Springer, 2018

12. Riyadh Al-Attabi, Y. S. Morsi, Jürg A. Schütz, **Ludovic F. Dumée***, Electrospun based filters for airborne contaminants capture, Handbook of Nanofibers, Springer, 2018

13. Andrea Merenda, Lingxue Kong, Bo Zhu, Mikel C. Duke, Stephen R. Gray, **Ludovic F. Dumée***, Functional Nano-porous Titanium Dioxide for Separation Applications – Synthesis Routes and Properties to Performance Analysis, Applied Environmental Science and Engineering for a Sustainable Future – Book Series, Springer, Chapter 10, 2017

14. Chunfang Feng, **Ludovic F. Dumée**, Zhifeng Yi, Li He, James Peng, Lingxue Kong, Design and properties of graphene based three dimensional (3D) architectures, Handbook of Graphene Science, Book 2 Chapter 11, ISBN 9781466591189 - CAT# K20500

15. Sears, Kallista, **Ludovic F Dumée**, Niall Finn, William Humphries, Focused Ion Beam Milling of Carbon Nanotube Yarns and Bucky-Papers: Correlating Their Internal Structure with Their Macro-Properties, FIB Nanostructures, 63-93, Publisher: Springer International Publishing, Lecture Notes in Nanoscale Science and Technology Volume 20, 2013, ISBN: 978-3-319-02874-3

16. **Ludovic F. Dumée**, Simon Smart, Mikel Duke, Stephen Gray, Next generation membranes for membrane distillation and future prospects, Chapter 16 in Pervaporation, vapour permeation and membrane distillation - Woodhead Publishing, Editors: Basile, Figoli & Khayet, 415-447, doi.org/10.1016/B978-1-78242-246-4.00014-3

(iii) Refereed journal articles – in inverse chronological order

1. Hafsa Siddiqui, Netrapal Singh, Palash Naidu, Koyalada Bhavani Srinivas Rao, Shaily Gupta, Avanish Kumar Srivastava, M.S. Santosh, Sathish Natarajan, Surender Kumar, **Ludovic F. Dumée*** and Sami Rtimi, Emerging electrochemical additive manufacturing technology for advanced materials: Structures and applications, Materials Today, November 2023 in Press
2. Ahmed Oluwatobi Yusuf, Samar Al Jitan, Reem Al Sakkaf, Hebah Sami Jarusheh, Corrado Garlisi, Ludovic F. Dumée and Giovanni Palmisano, 3D Printing to enable photocatalytic process engineering: A critical assessment and perspective, Applied Materials Today, 35, 2023
3. Twinkle Paul, Alaa Juma, Rami Alqerem, Georgios Karanikolos, Hassan A. Arafat and **Ludovic F. Dumée***, cScale-up of metal-organic frameworks production: Engineering strategies and prospects towards sustainable manufacturing, Journal of Environmental Chemical Engineering, 11 (5), 2023
4. Xiao Chen, Kevin Magniez, Pengchao Zhang, Wojciech Kujawski, Zhiqiang Chen and **Ludovic F. Dumée*** A "Green" Stirring Plasma Functionalization Strategy for Controllable Oxygen-Containing Functional Groups on Octa-Methyl POSS Microstructure, Nanomaterials, 13 (20), 2023
5. Yuan Hu, **Ludovic F Dumée**, Ming Xie, Ching Yoong Loh, Gang Chen*, Manhong Huang, Jinli Qiao, Membrane distillation of a waste stream from neodymium-iron-boron scrap recovery: Performance and scaling mitigation, Desalination, 567, 2023
6. Blaise L. Tardy*, Luiz G. Greca, Karl Mihhels, Erlantz Lizundia, **Ludovic F. Dumee** and Lourdes F. Vega, Integrating Arid Areas in the Global Bioeconomy: Opportunities and Challenges toward Sustainable Biomass Generation and Management, ACS Sustainable Chem. Eng. 2023, In Press
7. Solomon K. Gebremariam, Anish Mathai Varghese, K. Suresh Kumar Reddy, Yasser Fowad AlWahedi, **Ludovic F. Dumée** and Georgios N. Karanikolos, Polymer-aided microstructuring of moisture-stable GO-hybridized MOFs for carbon dioxide capture, Chemical Engineering Journal, 473, 2023
8. Madelyn K. Logan, Scheldon D. Irvin, Marie Enfrin, Hassan Arafat, **Ludovic F. Dumée*** and Yann Gibert, Toxicity of nanofibers on zebrafish embryogenesis – Impact of materials properties on inflammatory responses, Journal of Chemical Environmental Engineering, 11 (5), 2023
9. Pankaj Kumar, Vandana Mishra, Saiyami Bhardwaj, Shafali Garg, **Ludovic F. Dumée** and Radhey Shyam Sharma, Five-wheel framework for system-based monitoring of heavy metal pollution in rivers, Environmental Quality Management, 32 (4), 2023
10. Pauline E Desroches, Kilian S Fraysse, Saimon M Silva, Kate Firipis, Andrea Merenda, Mingyu Han, **Ludovic F Dumée**, Anita F Quigley, Robert MI Kapsa, Cathal D O'Connel, Simon E Moulton, George W Greene, A surface-tethered dopant method to achieve 3D control over the growth of a nanometers-thin and intrinsically transparent polypyrrole film, Electrochimica Acta, 463, 2023
11. Riyadh Al-Attabi, Fenghua She, Shuaifei Zhao, **Ludovic F Dumée**, Jürg A Schütz, Weihong Xing, Zhaoxiang Zhong, Lingxue Kong, Durable and comfortable electrospun nanofiber membranes for face mask applications, Separation and Purification Technology, 322, 2023
12. Essa Ansari, Nicolas Lopez Ferber, Abdul Aziz Hulleck, **Ludovic F Dumée***, Nicolas Calvet, Performance of vapour compression based atmospheric water generation systems in arid conditions–Experimentations and perspectives in the Gulf region, Journal of Water Process Engineering, 53, 2023
13. Anna Siekierka, Damien L Calahan, Wojciech Kujawski, **Ludovic F Dumée***, Ultra-selective chelating membranes for recycling of cobalt from lithium-ion spent battery effluents by electrodialysis, Desalination, 556, 2023
14. Vinay Kumar, Sivarama Krishna Lakkaboyana, Neha Sharma, Pritha Chakraborty, Mridul Umesh, Ritu Pasrija, Jithin Thomas, Vishal Kalebar, Iyyappan Jayaraj, Mukesh Kumar Awasthi, Theerthankar Das, Akeem Adeyemi Oladipo, Damia Barcelo, **Ludovic F Dumée**, A critical assessment of technical advances in pharmaceutical removal from wastewater–A critical review, Case Studies in Chemical and Environmental Engineering, 2023
15. Ahmed O Rashed, Chi Huynh, Andrea Merenda, Si Qin, Maxime Maghe, Lingxue Kong, Takeshi Kondo, **Ludovic F Dumée***, Joselito M Razal, Carbon nanofibre microfiltration membranes tailored by oxygen plasma for electrocatalytic wastewater treatment in cross-flow reactors, Journal of Membrane Science, 673, 2023
16. Ahmed O. Rashed, Chi Huynh, Andrea Merenda, Si Qin, Ken Aldren S. Usman, Abu Sadek, Lingxue Kong, Takeshi Kondo, **Ludovic F. Dumée***, Joselito M. Razal, Schottky-like photo/electro-catalytic carbon nanotube composite ultrafiltration membrane reactors, Carbon, 204, 2023
17. Ahmed O Rashed, Chi Huynh, Andrea Merenda, Julio Rodriguez-Andres, Lingxue Kong, Takeshi Kondo, Joselito M Razal, **Ludovic F Dumée***, Dry-spun carbon nanotube ultrafiltration membranes tailored by anti-viral metal oxide coatings for human coronavirus 229E capture in water, Journal of Environmental Chemical Engineering, 2023

18. Samar N Abd Elwadood, K Suresh Kumar Reddy, Yasser Al Wahedi, Ali Al Alili, Andreia SF Farinha, Geert-Jan Witkamp, **Ludovic F Dumée**, Georgios N Karanikolos, Hybrid salt-enriched micro-sorbents for atmospheric water sorption, Journal of Water Process Engineering, 52, 2023
19. Deepak Surendhra Mallya, Sara Abdikheibari, **Ludovic F Dumée**, Shobha Muthukumaran, Weiwei Lei, Kangaratnam Baskaran, Removal of natural organic matter from surface water sources by nanofiltration and surface engineering membranes for fouling mitigation–A review, Chemosphere, 2023
20. Hari Kalathil Balakrishnan, Soomin Lee, **Ludovic F. Dumée**, Egan H Doeven, Richard Alexander, Dan Yuan, Rosanne Marieke Guijt, 3D Printed Integrated Nanoporous Membranes for Electroextraction of DNA, Nanoscale, 2023
21. Hari Kalathil Balakrishnan, **Ludovic F Dumée**, Andrea Merenda, Cyril Aubry, Dan Yuan, Egan H Doeven, Rosanne M Guijt, 3D Printing Functionally Graded Porous Materials for Simultaneous Fabrication of Dense and Porous Structures in Membrane-Integrated Fluidic Devices, Small Structures, 2023
22. Mahsa Golmohammadi, Seyedeh Fatemeh Musavi, Meysam Habibi, Reza Maleki, Mitra Golgoli, Masoumeh Zargar, **Ludovic F. Dumée**, Saeid Baroutian, Amir Razmjou, Molecular mechanisms of microplastics degradation: A review, Separation and Purification Technology, 309, 2023
23. Solomon K.Gebremariam, **Ludovic F. Dumée**, Philip L. Llewellyn, Yasser Fowad Al Wahedia, Georgios N. Karanikolos, Metal-organic framework hybrid adsorbents for carbon capture – A review, Journal of Environmental Chemical Engineering, 11 (2), 2023
24. Raheema Khan, Ali Khraibi, **Ludovic F Dumée**, Peter R Corridon, From Waste to Wealth: Repurposing Slaughterhouse Waste for Xenotransplantation, Frontiers in Bioengineering Biotechnology, 2023
25. Gabriele Scandura, Priyanka Kumari, Giovanni Palmisano, Georgios N. Karanikolos, Julius Orwa, and **Ludovic F. Dumée***, Nanoporous Dealloyed Metal Materials Processing and Applications─A Review, Industrial & Engineering Chemistry Research, 2023
26. Gabriele Scandura, Sana Eid, Ali A Alnajjar, Twinkle Paul, Georgios N Karanikolos, Dinesh Shetty, Khalid Omer, Rami Alqerem, Alaa Juma, Huanting Wang, Hassan A Arafat, **Ludovic F Dumée***, Photo-responsive metal–organic frameworks–design strategies and emerging applications in photocatalysis and adsorption, Materials Advances, 2023
27. Shafali Garg, Vandana Mishra, Lourdes F Vega, Radhey Shyam Sharma, **Ludovic F Dumée***, Hydrogen Biosensing: Prospects, Parallels, and Challenges, Industrial & Engineering Chemistry Research, 2023
28. Shafali Garg, Vandana Mishra, Lourdes F. Vega, Radhey Shyam Sharma, and **Ludovic F. Dumée***, Hydrogen Biosensing: Prospects, Parallels, and Challenges, Industrial & Engineering Chemistry Research, 2023 (In Press)
29. Priyanka Kumari, Nupur Bahadur, Xavier A. Conlan, Xiangkang Zeng, Lingxue Kong, Luke A. O'Dell, Abu Sadek, Andrea Merenda and **Ludovic F. Dumée***, Stimuli-responsive heterojunctions based photo-electrocatalytic membrane reactors for reactive filtration of persistent organic pollutants, Chemical Engineering Journal, 452 (2), 2023
30. Ying Shi Chang, Priyanka Kumari, Catherine J. Munro, Gyorgy Szekely, Lourdes F. Vega, Suzana Nunes and **Ludovic F. Dumée***, Plasticization mitigation strategies for gas and liquid filtration membranes - A review, Journal of Membrane Science, 666, 2023
31. Cyril Hachemi, Marie Enfrin, Ahmed O. Rashed, Veeriah Jegatheesan, Peter D. Hodgson, Damien L. Callahan, Judy Lee and **Ludovic F. Dumée***, The impact of PET microplastic fibres on PVDF ultrafiltration performance – A short-term assessment of MP fouling in simple and complex matrices, Chemosphere, 310, 2023
32. Essa Ansari, Nicolas Lopez Ferber, Tamara Milošević, Jose Barron, Georgios N. Karanikolos, Faisal AlMarzooqi, **Ludovic F. Dumée*** and Nicolas Calvet, Atmospheric water generation in arid regions – A perspective on deployment challenges for the Middle East, Journal of Water Process Engineering, 49, 2022
33. Samar N Abd Elwadood, *, Yasser Al Wahedi, Ali Al Alili, Georgios N Karanikolos*, Aluminophosphate-Based adsorbents for atmospheric water generation, Journal of Water Process Engineering, 49, 2022
34. Pankaj Kumar, Vandana Mishra, Shalu Yadav, Archana Yadav, Shafali Garg, Pankaj Poria, Furqan Farooqi, **Ludovic F Dumée**, Radhey Shyam Sharma, Heavy metal pollution and risks in a highly polluted and populated Indian river–city pair using the systems approach, Environmental Science and Pollution Research, 123, 2022
35. Roberto D Katigbak, **Ludovic F Dumée***, Lingxue Kong, Isolating motile sperm cell sorting using biocompatible electrospun membranes, Scientific Reports, 12 (1), 2022
36. Albert Guirguis, **Ludovic F Dumée**, Xiao Chen, Lingxue Kong, Huanting Wang, Luke C Henderson, Photocatalytic-triggered nanopores across multilayer graphene for high-permeation membranes, Chemical Engineering Journal, 443, 2022
37. In Situ Growth of Cu/CuO/Cu2O Nanocrystals within Hybrid Nanofibers for Adsorptive Arsenic Removal, Elise des Ligneris, Andrea Merenda, Xiao Chen, Jingshi Wang, Bernt Johannessen, Nicholas M. Bedford, Damien L. Callahan, **Ludovic F. Dumée**, and Lingxue Kong*, ACS Applied Nano Materials, 5 (10), 2022
38. Ying Shi Chang, Zhen Yao Aaron Koe, **Ludovic F. Dumée**, Boon Seng Ooi, Scaling mitigation and salt reduction of vacuum membrane distillation using sacrificial zeolites, Journal of Environmental Chemical Engineering, 10 (3), 2022
39. Mohammad Mahdi A. Shirazi, **Ludovic F. Dumée***, Membrane distillation for sustainable wastewater treatment, Journal of Water Process Engineering, 47, 2022

40. Harveen Kaur, Deepak Rawata, Pankaj Poria, Udita Sharma, Yann Gibert, Abdul Samath Ethayathulla, **Ludovic F. Dumée**, Radhey Shyam Sharma, Vandana Mishra, Ecotoxic effects of microplastics and contaminated microplastics – Emerging evidence and perspective, Science of the Total Environment, 841, 2022

41. Priyanka Kumari, Nupur Bahadur, Xavier A Conlan, Majid Laleh, Lingxue Kong, Luke A O'Dell, **Ludovic F Dumée***, Andrea Merenda, Atomically-thin Schottky-like photo-electrocatalytic cross-flow membrane reactors for ultrafast remediation of persistent organic pollutants, Water Research, 218, 2022

42. Shalini Thakkar, Jing Liu, **Ludovic F Dumée***, Braj Raj Singh, Shruti Shukla, Wenrong Yang, Arsenic ion assisted core–satellites nano-assembly of gold nanoparticles for its colorimetric determination in water, Journal of Water Process Engineering, 2022

43. Shafali Garg, Pankaj Kumar, George W Greene, Vandana Mishra, Dror Avisar, Radhey Shyam Sharma, **Ludovic F Dumée***, Nano-enabled sensing of per-/poly-fluoroalkyl substances (PFAS) from aqueous systems–A review, Journal of Environmental Management, 308, 2022

44. Ming Li, Arash Zamyadi, Wenming Zhang, **Ludovic F Dumée**, Li Gao, Algae-based water treatment: A promising and sustainable approach, Journal of Water Process Engineering, 46, 2022

45. Xing Yang, Tina Hsia, Andrea Merenda, AL-Attabi Riyadh, **Ludovic F Dumee**, San H Thang, Lingxue Kong, Constructing novel nanofibrous polyacrylonitrile (PAN)-based anion exchange membrane adsorber for protein separation, Separation and Purification Technology, 285, 2022

46. Xing Yang, Andrea Merenda, AL-Attabi Riyadh, **Ludovic F Dumée**, Xiwang Zhang, San H Thang, Hung Pham, Lingxue Kong, Towards next generation high throughput ion exchange membranes for downstream bioprocessing: A review, 2022

47. Albert Guirguis, **Ludovic F Dumée**, Daniel J Eyckens, Melissa K Stanfield, Yanting Yin, Gunther G Andersson, Lingxue Kong, Luke C Henderson, Size-Controlled Nanosculpture of Cylindrical Pores across Multilayer Graphene via Photocatalytic Perforation, Advanced Materials Interface, 2022

48. Anna Siekierka, Marek Bryjak, Amir Razmjou, Wojciech Kujawski, Aleksandar N. Nikoloski, and **Ludovic F. Dumée**, Electro-Driven Materials and Processes for Lithium Recovery—A Review, Membranes, 12(3), 343, 2022

49. Mohammad Mahdi A. Shirazi, **Ludovic F. Dumée***, Membrane distillation for sustainable wastewater treatment, Journal of Water Process Engineering, 47, 2022

50. Yuchen Du, Biplob Kumar Pramanik, Yang Zhang, **Ludovic F. Dumée**, Veeriah Jegatheesan, Recent Advances in the Theory and Application of Nanofiltration: a Review, Current Pollution Reports, 2022

51. Aref Daneshfar, **Ludovic F Dumée**, Timothy C Hughes, Lingxue Kong, Thermally-Stable Photo-Curing Chemistry for Additive Manufacturing by Direct Melt Electrowriting, Additive Manufacturing, 2022

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206. **Ludovic F. Dumée***, Kallista Sears, Jurg Schütz, Niall Finn, Mikel Duke, and Stephen Gray, Carbon nanotube based composite membranes for water desalination by membrane distillation, AMS6, Kobe, JP; 2010, Desalination and water treatment, 17(1-3): p. 72-79

(iv) Selected conference submissions as the main author and presenter – in inverse chronological order

207. ***MSA-ISPT 2023**, Elsevier, December 2023, Perth, Australia, Keynote speaker on Catalytic membrane reactors design and perspectives*

208. ***MEMDES2023**, Elsevier, November 2023, Cochair of the conference and Invited speaker on Lithium recovery with advanced membranes*

209. ***ICOM 2023**, July 2023, Tokyo, Japan, Keynote speaker on Catalytic membrane reactors design and perspectives and PFAS management by surface control of ultrafiltration membranes*

210. ***IMSTEC 2022**, December 2022, Melbourne, Victoria, Australia, Invited speaker on Light responsive membrane adsorbent for desalination applications*

211. ***CESE2022**, November 2022, Dubai UAE, Talks on Atmospheric water generation economics and life cycle analysis and on Circular economy management of resources from wastewater*

212. ***Aseanian Membrane Society 13**, Singapore, July 2022, Keynote on Stimuli responsive membranes for water treatment and Oral on Molecular imprinted membranes for resource recovery*

213. ***COP26 Future We Want Panel Member**, March 2022, during the MENA Climate Week (Dubai, UAE)*

214. ***Expo2020 World Water Day Water Resource Management conference**, March 2022, Invited Speaker, Atmospheric Water Generation strategies for the MENA region (Dubai, UAE)*

215. ***CESE 2021** (Australia, online), Invited talk on microplastics remediation with membranes*

216. ***ICOM2020** – Keynote Speaker, London, UK – December 2020, Pore nano-engineering across porous graphene membranes*

217. ***MSA AGM 2020**, Keynote Speaker, Melbourne, Australia – November 2020, Blood apheresis with membranes – separation challenges and prospects*

218. ***ICONN20** – Brisbane, Australia – February 2020, Invited Talk on Photocatalytic properties of native graphene oxide – impact of the sheet orientation*

219. ***IMSTEC20** – Sydney, Australia – February 2020, Talk on Sperm cell separation with membranes – towards fitness speciation and sexing*

220. ***IEESEP19** – Melbourne, Australia - November 2019, Invited Talk on Microplastic removal with advanced membranes*

221. ***Francofilt 2019** - Sfax, Tunisia, Plenary talk on Photocatalytic Membrane Reactors Design*

222. ***Aseanian Membrane Society 12 conference** – Jeju, Korea – July 2019, Invited talk on PFAS removal with membranes*

223. ***Taiwanese Membrane Society Conference 2019** – Taipei, Taiwan – July 2019, Invited talk on Boron nitride based membranes for low fouling propensity towards natural organic matter removal*

224. ***Taiwan – Australia networking event** – Taipei, Taiwan – June 2019, Invited Talk on Healthcare application of membranes – a review*

225. ***Australian Colloidal and Interface Science Conference 2019** – Hobart, Tasmania, Australia – February 2019, Invited talk on Photocatalytic vertically aligned carbon nanostructures for water treatment*

226. ***IWA Regional Specialty Membrane Conference** - Vadodara, India - December 2018, Invited Talk on Microplastic removal with membranes*

227. ***AMSIC 2018 – July 2018 -** Johannesburg South Africa – Invited talk on Anti-viral membrane reactors*

228. ***ICCMB 2018** – January 2018 - Invited talk on Advanced Photocatalytic Membrane Reactors*

229. ***ICONN18** - Wollongong, NSW, Australia – February 2018, Talk on Development of ultra-thin plasma modified membranes for water treatment*

230. ***International Conference on Water Resource Management** – December 2017, Kolkata India – Invited talk on Catalytic Membrane Reactors design and operations*

231. ***MRS Spring 2017** – Invited talk on Carbon nanotube membranes for water desalination by membrane distillation*

232. ***IMSTEC16**, December 2016, Adelaide, SA- AUSTRALIA, Talk on PDMS/GO reinforced metal nanocomposite membranes for water desalination*

233. ***AICHE Conference**, November 2016, San Francisco, CA – USA, Membrane distillation with modified metal membranes – potential of graphene coatings*

234. ***CarbonWater**, November 2016, Shanghai, Shandong – CHINA, A review on graphene modified metal membranes design and applications*

235. ***EMN Metal Organic Frameworks Meeting**, June 2016, Qingdao, Shandong – CHINA, Invited Talk on Next Generation membrane reactors – using MOFs as scaffolds for catalytic metal particles inclusion*

236. ***Australia – India Water Scarcity Workshop**, June 2016, RMIT, Victoria – AUSTRALIA, Invited Talk on Advanced Materials for Water Desalination by Membrane Distillation and Membrane Crystallization – an outlook on properties – performance relationships*

237. ***ICONN16**, February 2016, Canberra ACT – AUSTRALIA, Talk on Catalytic silver decorated metal organic framework nanocomposite membrane reactors for pesticide remediation; Student Andrea Merenda, talk on Plasma atom doping of anodized titania nanotube coatings towards photocatalytic materials in the visible range; Student Elise*

des Ligneris, talk on Metal alloyed nano-hollow fibre membranes for heavy metal ions removal; Student James Maina, talk on Controlled growth and interface of metal organic frameworks across porous metal substrates for gas separation applications. All Bursary of the ANN

238. ***Small Angle Scattering (SAS) Symposium 2016**, February 2016, RMIT, Victoria – AUSTRALIA, Invited Talk on Evaluating pore collapse across nano-porous membranes from water evaporation by in-situ SAXS analysis*

239. ***GEM 2016**, Geelong Australia, Talk on Temporal stability of functional groups introduced across carbon nanotube by plasma treatment, Student Rackel Reis, Plenary talk on Plasma treatment techniques to enhance the performance of thin film composite membranes*

240. ***CESE 2015**, Sydney Australia, Student Australia Abedeh Gholidoust, talk on Seeded growth of metal organic frameworks across carbon nanotube fabrics and their potential for CO_2 capture, **Best Oral Presentation,** Student Nouran El-Badawi, talk on Impact of the presence of carbon nanotubes during membrane fabrication on the macro-voids formation during phase separation*

241. ***International Conference on Desalination with Membranes** (Elsevier), July 2015, Singapore, Talk on Catalytic thin film hybrid composite membranes for water desalination and pesticide remediation. Rackel Reis (Student) Talk on Surface modification of thin film composite membranes with irradiative technologies*

242. ***12th International Conference on Catalysis in Membrane Reactors**, Poland, Student Francois-Marie Allioux Poster on Catalytic electro-membrane reactor for the continuous production and purification of biodiesels, **Best Poster Presentation***

243. ***RSC Electrochemistry conference 2015**, London UK, Student Bao Lin, Poster on De-alloying of brass thin foils towards the design of nano-porous copper materials*

244. *4th Membrane Society of Australasia ECR Symposium – Talk on : My precious : Porous metal tales, November 2014, Geelong, Victoria – Australia*

245. ***ICIM2014**, Brisbane, Queensland – AUSTRALIA, Talk on Development of composite hollow-fibre ion-exchange membranes for water purification (Student : FM Allioux)*

246. ***French-Australian Membrane workshop** – Brisbane, Queensland - AUSTRALIA 2014, Talk on potential of metal membranes for liquid purification*

247. ***Small Angle Scattering (SAS) Symposium 2014**, Deakin University, Victoria – AUSTRALIA, Talk on SAXS applied to carbon nanotube characterization*

248. ***Graphene14**, Toulouse – France, Poster on the fabrication of graphene – porous metal composites*

249. ***ICONN14**, Adelaide, South Australia – AUSTRALIA, Talk on Nano-porous metal frameworks fabrication by metal nano-particle dispersion across amphiphilic block co-polymers, Bursary of ANN for attendance, and Talk on Plasma polymerization of amine-rich monomers onto commercial reverse osmosis membranes towards anti-biofouling properties (Student: Rackel Reis)*

250. ***WIRMS13**, Lorne, Victoria – AUSTRALIA, Poster on Mapping interfaces across porous metal - ion exchange reinforced hybrid membranes by FTIR spectroscopy at the Australian Synchrotron (Student FM Allioux) and Poster on the Characterization of plasma polymerized commercial memrbanes by FTIR mapping (Student: Rackel Reis)*

251. ***IMSTEC13 -** International Membrane Science and Technology Conference, Melbourne, Victoria – AUSTRALIA, Talk on Sintering of metal nano-particle composite assemblies: towards simple processing of nano-porous metal membranes for liquid purification and, poster on In situ Small Angle X-ray Scattering Gas Permeation across Micro- and Nano-porous Membranes: Correlating Diffraction to Permeation ; Poster on Fabrication and characterization of metal reinforced ion exchange memrbanes (Student : FM Allioux), Poster on Plasma treatment of commercial reverse osmosis membranes for water desalination (Student : Rackel Reis) and Poster on D-alloying of metal film films towards meso-porous metal memrbane design (Student: Bao Lin)*

252. ***Humboldt Colloquium 2013**, September 2013, Sydney, New South Wales – AUSTRALIA, talk on Novel fabrication routes towards nano-porous metal frameworks*

253.** **ANN ECR symposium**, December 2012 Melbourne, Victoria – AUSTRALIA, Poster on A high volume and low damage route to hydroxyl functionalization of carbon nanotubes using hard X-ray lithography – **Prize for the best ECR presentation

254. ***3rd ECR MSA symposium**, November 2012 Brisbane, Queensland – AUSTRALIA, Talk on The fabrication of metal membranes for water and solvent purification: a review*

255. ***Euromembrane 2012**, September 2012, Imperial College London – UK, poster on the Reclamation of ethanolamine solvents used in carbon capture by nano-filtration and electrodialysis (Pres. Josephine Lim)*

256. ***CO2CRC symposium 2011**, November 2011 Adelaide, South Australia – AUSTRALIA, Talk on the Reclamation of amine based solvents by membrane technologies: benchmarks, prospects and current results and; Poster on The quantitative determination of poly(ethylene imine) concentration in ethanolamine / water mixture by complexation with copper and UV-visible analysis*

257. ***2nd ECR Membrane Society of Australasia (MSA) symposium**, November 2011 Glenelg, South Australia – AUSTRALIA, Talk on Reclamation of amine based solvents by membrane technologies: a review*

258. ***IMSTEC10-AMS6**, International Membrane Science and Technology Conference, November 2010 Sydney, New South Wales – AUSTRALIA –in conjunction with the Aseanian Membrane Society - AMS 6, Talk on the Properties of high gas adsorption capacity gold reinforced carbon nanotube bucky-paper hybrid membranes, and; Poster on Functionalised carbon nanotube membranes for desalination: impact of hydrophobicity on the membrane performance - **Best student oral presentation***

259. ***Gordon Research Conference** (GRC) on Membrane Materials and Processes, July 2010 New London, NH – USA, Poster on Alkoxysilane modified carbon nanotubes for increased hydrophobicity bucky-papers used as membranes in membrane distillation*

260. ***Australian Desalination Summit 2010**, July 2010 Melbourne, AUSTRALIA – Invited Talk in plenary session on a deepa*

261. *the use of carbon nanotube for separation and water purification*

262. ***NanoMemCourse** on "Health and sustainable water", April 2010 Twente, the NETHERLANDS – European Union Marie Curie travel award (2000 AUD), Poster on the Performance of carbon nanotube based membranes for seawater desalination - a review - **Recipient of the European Union - Marie Curie Scholarship** (5,000 AUD)*

263. ***ICONN10**, February 2010 Sydney, AUSTRALIA, Talk on the Thermal properties of carbon nanotube macro-structures and; Poster on Tuning the porosity of composite material carbon nanotube based membranes for water desalination*

264. ***1st ECR MSA Symposium**, February 2010 Wollongong, AUSTRALIA, Talk on Performance of PTFE/carbon nanotube composites for water desalination by membrane distillation - **Best oral presentation***

265. ***Victoria University student symposium 2009**, September 2009 Melbourne, AUSTRALIA, Talk on a Review of my PhD work on integrating carbon nanotubes into membranes for water desalination – **Best oral presentation***

266. ***AMS5** - Aseanian Membrane Society conference 5, July 2009 Kobe, JAPAN, Co-winner of the Membrane Society of Australasia – Millipore travel grant to attend AMS5, Poster entitled Carbon Nanotube based composite membranes for water desalination by membrane distillation – Recipient of the Millipore – MSA travel award (1,000 AUD) and **Best student presentation award***

267. ***Australian Water Association** (AWA) specialty conference on Desalination and Membrane Technologies, February 2009 Sydney, AUSTRALIA, Talk in plenary session at the on Advanced carbon nanotube membranes for direct contact membrane distillation*

268. ***Victoria University student symposium 2008**, Talk on a Design and fabrication of carbon nanotube membranes for water purification and gas permeation*

269. ***ICOM08** - International Congress on Membranes 2008, July 2008 Hawaii, USA, Poster presentation on Pure Carbon Nanotube Bucky-paper membrane fabrication and use in Direct Contact Membrane Distillation – preliminary results*

(vii) Patents

270. Fenghua She, Lingxue Kong, Long Tan, Ludovic F. **Dumée**, Weimin Gao and Li He, Electro-centrifugal multi-functional Fibre Producing Device, Applicant: Neworld E & E Pty Ltd, Patent number: 201410108910.1, Date of application filed: 21/03/2014, Authority: State Intellectual Property Office of the People's Republic of China

271. Baoping Wei, Fenghua She, Lingxue Kong, Long Tan, Yunsheng Zhao, Ludovic **Dumée**, Xiaomin Xu, A Co-axial Fibre Spinning Chamber, Filing No.：201410698917.3, filing date: 26 Nov. 2014, Authority: State Intellectual Property Office of the People's Republic of China

272. Fenghua She, Long Tan, Lingxue Kong, **Ludovic Francis Yannick Dumee**, Baoping Wei, Weimin Gao, Li He, A Multi-functional Fiber Spinning Device, Application No.: **PCT/CN2015/074707,** Application date: 20 March 2015, Authority: State Intellectual Property Office of the People's Republic of China ; 2020, US10351972B2

6. *Esteem indicators and professional engagement*

6.1 Memberships / Professional Societies / Industry and Government appointments

Grant, selection and stirring committees (Australia 2012 – 2020)

- 2022 – current: Khalifa University - RIC2D center Academic Advisory Board, Decarbonization Lead and delegated to CAPEX acquisition and lab retrofitting for the newly established center; delegated to industry engagement and interactions
- 2021 – 2023: Khalifa University – RICH center Leadership team and Theme lead in charge of Theme 2 (CO2 utilisation), outreach activities through online and in presence monthly webinars, lab retrofitting and EHS
- 2021 – current: Khalifa University, Postgraduate committee panel member, Department of Chemical Engineering
- 2018 – 2020: Deakin, IFM – Materials for Circular Economy Executive panel member
- 2018 – 2020: ANFF stirring operations committee for state-wide operations
- 2018 – 2020: Victoria node of Materials Australia – board member as Geelong representative
- 2016 – 2020: Australian Synchrotron IR beamline PAC committee
- 2014 – 2020: AINSE-ANSTO Materials Science and Engineering committee

Professional memberships

- Lifetime Member of the **Indian Membrane Society**
- Lifetime Member of the **African Membrane Society**
- Lifetime Member of **Membrane Society of Australasia** since 2008, founding Secretary of the Inaugural board
- Materials Research Society Since 2017
- AiChe Since 2016
- The American Chemical Society since 2011
- The European Membrane Society since 2010
- Australian Nanotechnology Network since 2008
- Australian Water Association (AWA) since 2008

6.2 Associative life and professional service

Conferences organization

- 2024 – **Co-Chair** of 2D Materials in Decarbonization Applications, (Abu Dhabi, UAE) co-organized and hosted by the RIC2D Center at Khalifa University (80 invited speakers) – Budget 150k USD
- 2024 – **Co-Chair** of International Association for Carbon Capture Conference 2024 – ICCU, online (30 speakers)
- 2023 – **Co-Chair** of MEMDES2023 (Sitges, Spain), major Desalination conference hosted by Elsevier and the Desalination journal (220 attendees) – Budget 300k USD
- 2022 – **Co-Chair** of CESE 2022 (Dubai, UAE), major Environmental conference for the first time in the MENA region; and **Organizing Committee Member** of IMSTEC2022 (Melbourne, Vic, Australia) (180 attendees) – Budget 250k USD
- 2020 – **Treasurer** of the IMSTEC2020 Conference (Sydney, NSW, Australia) – Budget 300k AUD
- 2018 – **Treasurer** of the Aseanian Membrane Society Conference (AMS11) 2018 (Brisbane, Queensland, Australia) - Budget 300k AUD
- 2017 – **Co-Chair** of the ACS Festival of Chemistry in conjunction an outreach program aimed at introducing chemistry to high-school students, with the RACI centenarial Congress in July 2017, Melbourne – Budget 6k AUD
- 2016 – **Co-Chair** of the 2016 Australian nanospectroscopy Symposium (Deakin University, Waurn Ponds Victoria) – Budget ~ 5k AUD
- 2015 - **Co-Chair** of the 2015 Small Angle Scattering Workshop (Deakin University, Waurn Ponds Victoria) – Budget ~ 5k AUD
- 2014 – **Chair** of the 4th Membrane Society of Australasia ECR Symposium to be hosted at Deakin University, Waurn Ponds - Victoria in November 2014 with up to 50 attendees from the Australasian region and overseas partners membrane associations – Budget ~15k AUD.

- 2009 – **Organising committee Member** of **AMS6/IMSTEC as sponsorship coordinator**, international conference on membrane and separation with more than 150,000 AUD of budget.

- 2008 - **Organising committee Member** of the 1st MSA ECR symposium: in charge of sponsorship coordination. >15k AUD were collected for the successful event that gathered around 50 students from the USA, Singapore, New Zealand and Australia; 2008 - **Organising committee member** of Victoria University's 2009 student symposium; In charge of abstract submission and event coordination

6.3 Awards and esteem indicators

Prizes and awards

- **Membrane Society of Australia – ISPT, Mid-career Researcher Award 2023**, presented at the MSA_ISPT conference in December 2023 (3,000 AUD)
- **Industrial & Engineering Chemistry Research, 2022 Class of Influential Researchers for the MENA region**
- **Frontiers in Chemical Engineering – Editor award 2021**
- **Membrane Society of Australasia 2021 Science Award**
- **Victoria Fellowship and AFAS award** 2017 (22,000 AUD)
- **Australia – India Institute (AII) Fellowship** 2017 (2,500 AUD)
- **Deakin Vice Chancellor Award for Best Early Career Researcher** 2016 – 5,000 AUD
- **Membranes MDPI Travel Award** to attend ICOM17 in San Francisco CA, USA (1,200 AUD)
- Academic Study Leave (ASL) Deakin 2015 – 8,000 AUD, research stay at the ENS Paris and The ETH Zurich
- **Smart Geelong Network Award** as an Early Career Researcher in November 2014 (3,000 AUD)
- Semi Finalist of the **BASF Young Victorian Achiever Award** in Science and Technology 2013 – prize from the Victoria Youth Minister (12/04/2013 – Melbourne, Victoria, Australia)
- **Elsevier prize** from the Editor in Chief of *Desalination 2013*: Certificate of Excellence in Reviewing (Prof. Nidal Hilal)
- **Elsevier – Australian Nanotechnology Network Prize** for the best ECR Poster presentation at the 2012 ANN ECR symposium – Melbourne, Victoria – Australia – (300 AUD)
- **Best PhD student 2011 / 2012 – Victoria University** Faculty of Engineering Most Outstanding PhD award (Award presented on October the 3rd 2012) (250 AUD)
- **Vice Chancellor's citation** for excellence in Research and Research Training 2012 at Victoria University (Award presented on October the 25th 2012)
- **Recipient of the European Union - Marie Curie Scholarship** (5,000 AUD) to attend NanoMemCourse 2010 in Enschede – Netherlands and work at the European Membrane Institute in Montpellier (May to June 2010)
- AMS6 / IMSTEC (Sydney, NSW, Australia) – **Best oral presentation** (2010 - 500AUD)
- AMS5 (Kobe Japan) – **Best student presentation** (2009 - 500 AUD)
- 1st MSA ECR symposium – **Best oral presentation** (2009 - 250AUD)
- Recipient of the **Millipore MSA award** to attend AMS5, Kobe, Japan (2009 - 1,000AUD)
- Victoria University Student Symposium 2009 – **Best student presentation** (2009 - 250 AUD)

Major editorial and reviewer roles

- **Major editorial roles:** Journal of Water Process Engineering as **co-Editor in Chief (Since November 2023)** and Sections Editor (Membranes and Biological Processes), previously **Associate Editor and Section Editor** of the Physicochemical processes section (Elsevier since 2019), Associate Editor of Circular Economy and Sustainability (Springer, since 2020)
- Guest Editor for various special issues in Desalination (Elsevier, Since 2020), Membranes (MDPI) 2014, Journal of Nanomaterials (Hindawi) 2015, Frontiers in Chemical Engineering (Frontiers) 2019), International Journal of Chemical Engineering (2018)
- Editorial board member: Desalination (Elsevier, since 2020), Journal of Resource Recovery (since 2020)

- **Reviewer for top 1% and Q1 journals including but not limited to**: Journal of Membrane Science (> 100 reviews), Desalination (> 50 reviews), Carbon (>30 reviews), Chemical Engineering Journal (>30 reviews), Desalination and Water treatment, Analyst, JACS, Nature Communications, Advanced Functional Materials…

- **Amongst the top 1% reviewer for Desalination in 2013 (Prize from Prof. Hilal) and Journal of Membrane Science in 2014 (editor pick)**

Selected organization and international scientific committees

- International Organization Committee of AMS12, Jeju Korea, July 2019
- International organizing committee of EMS18
- International Organization Commitee of Francofilt 2019, Hamamet, Tunisia, September 2019
- International Scientific Commitee of Euromembrane 2018, July 2018, Valencia, Spain
- International scientific commitee of the 2nd Conference of the African membrane Society, July 2018, Johannesburg, South Africa (AMS)
- International scientific commitee of the 6th IWA Regional Membrane Technology Conference, December 2018, Vadodara, Gujarat, India
- Scientific commitee of the IEESP Conference, January 2018 (Melbourne – Victoria)

7. Researchers teaching and mentoring

He is the proud supervisor and co-supervisor of students and staff including:

- **Principal or coprincipal supervisor** of 12 PhD or MSc students – Mr Essa Ansari, Mr Mohamed Alyassi, Mr Ebrahim Alosta, Ms Omnya Nasser, Ms Fatima Balfaqih, Mr Mujeeb Kareem, Mr Solomon Gebremariam, Mr Yongjie Liu, Ms Hooralain Bushnaq, Ms Qian Liu, Ms Maryam Qassem (Khalifa University); Ms Christine Bacal (IFM – Deakin University, thesis submitted)

- **Supervisor of 7 research staff (Khalifa University):** Dr Priyanka Kumari, Dr Hari Kalathil, Dr Ieva Sapkaite, Dr Mhd Faraz, Dr Fatima Mumtaz, Ms Sisi Pu, Ms Rajasree Pallath

<u>Alumni</u>

- **Alumni postdoctoral fellows**: Dr Andrea Merenda (2019-2021), Dr. Anna Siekierka (2019-2020), Dr. Riyadh Al-attabi (2018-2021), Dr. James Maina (2019-2021), Dr. Gabriele Scandura (2021-2022), Dr Catherine Munro (2021-2022), Dr Twinkle Paul (2021-2022), Dr Chang Shi (2021-2023)

- **Alumni PhD students:** Dr. Samar Elwadood (2023), Dr. Ahmed Rashed (2023), Dr. Hari Balakrishnan (2023), Dr. Priyanka Kumari (2021), Dr. Jingshi Wang (2021), Dr. Albert Kamal (2021), Dr Aref Daneshfar (2020), Dr. Andrea Merenda (2019), Dr. James Maina (2019), Dr Xiao Chen (2019), Dr Elise des Ligneris (2019), Dr. Riyadh Al-Attabi (2022), Dr Anbu Vanangamudi (2019), Dr Daniel Oldfield (2018), Dr. Lin Bao (2017), Dr. Francois-Marie Allioux (2017), Dr. Rackel Reis (2016)

- **Alumni Ms degrees**: 2022 – Khalifa University: Mr Ahmed Gulzar, Mr Essa Ansari; 2011, Lead over 10 Master students from Tsinghua University (China) while at the University of Melbourne to completion, 2013, lead to 2 master students from Toulouse University (France) to completion (Mr Francois-Marie Allioux and Mr Jean-Baptiste Lemoine), Mr Andrea Merenda (University of Montpellier and Turino Polytecnico University), Ms. Alice Ancell (ENSCM Strasbourg France), Ms Hortense Alglave (Universite de Grenoble – France) and Ms Elise des Ligneris (ENSAIT Roubaix – France)

Ludo works very closely with other junior post-doctoral fellows and PhD student co-workers and do his best to help and guide them within the scope of his knowledge. He enjoys his role as an advisor or supervisor and believe that it helps often make a difference.

8. **Research grants:** Total cash funding sourced since 2012 - 2022: **>USD$20,000,000.**

Named Investigators, principal underlined.	**Project title**	**Your role (PI, co-PI, CI EI)**	**Name of funding body and funding scheme**	**Total value ('000 $US)**	**Years of funding**	**Support type (R/C/P)**
Khalifa University – UAE Since 2021						
Maryal Khaleel (PI), Ludovic Dumee, Ricardo Noguiera	Nanoporous Carbon Cathodes for the Electro-catalytic Reduction of CO2 to Fuels	Co-PI	RIG funding scheme (Khalifa University)	326	2023-2026	C
Ludovic F. Dumee (PI), Shadi Hasan, Enas Alnashef, Habiba Al Safar, Rahul Nair	2D nanomaterials for water treatment and desalination	PI	RIC2D center at Khalifa University Directed project	3,000	2022-2025	C
Damien Quemener, Ludovic Dumée et al.	Master in Membrane Engineering for Sustainable Development - MESD	Co-PI	Erasmus+ Program, Erasmus Mundus	$500	2023-2025	C
Rachel Garcia-Pacheco, Gaetan Blandin, Wolfgang Gernjak, Ludovic F. Dumée	Osmolives - Giving four lives to osmotic membranes with innovative recycling processes	Co-PI	Ministerio de Ciencia e innovacion, Spain, EU	$100	2022-2025	C
Alessandro Decarlis, Ludovic F. Dumée et al.	Mafic and ultramafic rocks carbonation, perspective of CO2 storage in the UAE	Co-PI	ADNOC R&D	$300	2022-2023	P
Ahmed Al Hajaj, Ludovic F. Dumée	Multiscale design and synthesis of slag-sorbents for Calcium-Looping CO_2 capture.	Co-PI	Khalifa University CIRA2022 scheme	$580	2022-2025	C
Ludovic F. Dumee	Healthcare separation materials	PI	FSU – Khalifa University	$275	2021 - 2023	P
Ludovic F. Dumee, Catherine Munro, Hassan Arafat, Jorge Rodriguez	Evaluation of nuclear plant water intake quality and bioremediation solutions	PI	ENEC – Khalifa University	$250	2022-2023	P
Ludovic F. Dumee, Hassan Arafat	Inland desalination with light responsive adsorbents	PI	ADAFSA direct industry funding	$400	2021-2024	C

Ludovic F. Dumee, Giovanni Palmisano	Phtolocyanine enabled nanofibre membranes for biologically compromised microplastics remediation	PI	KAU-KU strategic funding	$272	2021-2024	C
Samuel Mao, Nicolas Calvet, Alejandro Rios, **Ludovic F. Dumee**	Atmospheric Water Generation project	Co-PI	Executive Affair Authority funding for Atmospheric Water Generation project	$3,000	2021-2024	C
Nicolas Calvet, **Ludovic F. Dumee**	Testing and evaluating performances of an Atmospheric Water Extraction (AWE) System, Aquovum	Co-PI	Aquovum direct industry funding	$200	2021-2022	P
Deakin University – Australia Since 2012						
Ludovic F. Dumee	Development of two-dimensional nanoporous membranes	CI	ARC DECRA	$400	2018-2021	**P**
Ludovic F. Dumee, Lingxue Kong	Separation membranes for blood plasma resource recovery	CI	ARC ITRH, CSL Behring	$400	2019-2021	**P**
Aleks Nikoloski, Pritam Singh, Touma Issa, Eddy Poinern, Mamata Mohapatra, Jin Young Lee, Katherine Mumford, **Ludovic F. Dumee**, Ali Karrech, Bogale Tedese, Erkan Topkal, Richard Alorro, Elizabeth Watkin, Mark Aylmore, Boris Abijancic, Elsayed Oraby, Jim Cupitt	Recycling, reuse and repurposing of spend batteries	CI	Future Batteries industries CRC, (#049-FBICRC-19-2-09-EI)	$1,000	2020-2024	**C**
Aleks Nikoloski , Mark Aylmore, Guoxia Wang, Boris Abijanic, Laurence Dyer, Richard Alorro, Michael Cortie, George Franks, Pritam Singh, Bogale Tedese, Greg O'Connot, Jim Cupitt, Hao Liu, Dawel Su, **Ludovic F. Dumee**, Ali Karech	Beneficiation and Chemical Processing of Lithium Minerals	CI	Future Batteries Industries CRC, (#043-FBICRC-19-2-07-EI)	$3,500	2020-2024	**C**
Ludovic F. Dumee, Mary She, Lingxue Kong	Air filtration membranes for pollen capture	**CI**	Business Victoria – Jianghsu province (China)	$150	2018-2020	**P**

James Maina, **Ludovic Dumee**	Catalytic reactors for CO_2 conversion by atomic layer deposition	**Mentor**	Deakin University, Alfred Deakin Postdoctoral research funding	$180	2019-2020	**P**
Ludovic Dumee	Recovery of valauble heavy metals from battery effluent brines with electro-conductive membranes in electrodialysis	**CI**	Deakin University, Circular Economy strategic fund	$90	2019-2020	**P**
Alfredo Pacheco, **Ludovic Dumee,** Cardenas Garcia, Jaime Dante	Development of in-land, high altitude desalination system for brines with membrane distillation	**CI**	National Research Fund of Peru	$75	2019-2021	**P**
Ludovic Dumee	Carbon nanotube membrane development from Lintec products	**CI**	Lintec of America, R&D funding	$100	2018-2021	**P**
Ludovic F. Dumee	Nanostructured robust metal-materials for environmental remediation by atomic layer deposition	**CI**	Victoria Fellowship 2018 and Australian French Association for Science and Technology	$15	2018	**P**
Prof Christopher McConville, Prof Dougal McCulloch, A/Prof Madhu Bhaskaran, A/Prof Lan Wang, A/Prof Brant Gibson, Prof Laurence Meagher, Dr Sebastian Thomas, A/Prof Joselito Razal, **Dr Ludovic Dumee**, Dr Luhua Li, Prof David Jamieson	Advanced multifunctional photoelectron spectroscopy platform	**CI**	ARC LIEF	$470	2018	**P**
Prof. Peter Hodgson, Prof. Stephen Gray, Prof. Lingxue Kong, Prof. Mikel Duke, Mr. Gilbert Erskine, **Dr. Ludovic Dumee**	Functional nano-porous metal membranes for sustainable separation in industrial processes	CI	ARC Linkage and AMS	$450	2014-2017	**P**
Prof. Xiwang Zhang et al., **Ludovic Dumee**	Energy Efficient Separation Hub	CI	ARC ITRH	3,000	2017-2022	**P**
Dr. Ludovic DUMEE, Dr. Mary She, Prof. Lingxue Kong	Hydrophobic surface coatings across polymeric shade clothes	CI	Research Innovation (Industrial Partner Gale Pacific)	$85	2016-2017	**P**
Dr. Ludovic DUMEE, Mr James Maina	10753, Characterization of inorganic nanoparticles/metal organic frameworks hybrid	CI	AINSE/ANSTO	$15	2017	**P**

	membrane reactors using Rutherford Backscattering (RBS) and Particles induced x-ray emission (PIXE)					
Dr. Ludovic DUMEE, Prof. Lingxue Kong	Collaborative visit to Nanjing Univeristy and Chinese Neutron Facilities (Shanghai)	CI	Chinese Academy of Science (CAS) Travel award	$2	2016	**P**
Dr. Ludovic DUMEE, Mr Francois-Marie Allioux, Mrs Jingshi Wang	5649, In situ SANS analysis of free volume fraction and macro-molecular interactions across ion-exchange membranes during electro-dialysis process	CI	AINSE/ANSTO	$14	2017	**P**
Dr. Ludovic DUMEE	Collaborative visit at ShanghaiTEch and EMN Conference invited lecture	CI	CASS Travel Award	$3	2016	**P**
Dr. Ludovic DUMEE, Mrs Rackel Reis, Prof. Mikel Duke	S-NOM experiment to assess the homogeneity and morphology of plasma modified TFC membranes	CI	Australian Synchrotron International Travel Award	$5	2016	**P**
Dr. Ludovic Dumee, Mr Francois-Marie Allioux, Chris Garvey (ANSTO), Lingxue Kong	In situ analysis of free volume fraction and macro-molecular interactions across ion-exchanger during electro-dialysis process by SANS and USANS	CI	AINSE/ANSTO	$50	2016	**P**
Dr. Ludovic Dumee, Mr Francois-Marie Allioux, Chris Garvey (ANSTO), Thomas Dorin, Prof. Peter Hodgson	Free volume fraction and macro-molecular interactions across ion-exchanger assessed by SANS and U-SANS	CI	AINSE/ANSTO	$50	2016	**P**
Dr. Ludovic Dumée, Dr. Cristina Pozo-Gonzalo, A/Prof. Patrick Howlett	Capacitive deionisation with graphene coated metal membranes	CI	CRGS Deakin	$13	2016	**P**
Dr. Ludovic DUMEE, Dr Thomas Dorin, Dr. Sachin Agarwal (UniMelb)	Graphene coatings across orthodontics implants	CI	IFM Small grant	$14	2016	**P**
Dr. Ludovic Dumee, Mr Francois-Marie Allioux, Prof. Peter Hodgson	Hydrolysis kinetics of silanes across the surface of ultra low roughness stainless steel materials	CI	AINSE / ANSTO	$3	2015	**P**

Dr. Mary She, **Dr. Ludovic Dumee**, Prof. Lingxue Kong	Characterisation & Analysis of Virgin & Recycled PP products	CI	Consulting – direct industry funding	$20	2015	**P**
Dr. Ludovic DUMEE, Mrs Rackel Reis, Dr. Kevin Magniez, Prof. John Orbell, Prof. Lingxue Kong	Surface grafting of thin-film composite membranes via gamma ray irradiation	CI	AINSE/ANSTO	$3.5	2015	**P**
Dr. Cristina Pozo-Gonzalo, Dr. Patrick Howlett, Dr. Angel Torriero, Professor Maria Forsyth, Dr. Angel Torriero, Dr. Patrick Howlett, Dr **Ludovic Dumée**, Prof Leigh Ackland, Laura Sanchez, Claudia Hunziker, Dr. Amal Siriwardana and Dr. Fabrice Morin, Prof. David Mercerryes from Polymat, Prof. Michel Armand and Prof. Teofilo Rojo from CIC Energigune, Dr. Alfredo Ortiz and Prof. Inmaculada Ortiz Uribe	Deakin-North of Spain Research Alignment Workshop	CI	Deakin International Research Development grant	$12	2014	**P**
Dr. Ludovic Dumée, Dr. Li He, Dr Kevin Magniez, Dr. Jürg Schütz, Prof. Peter Hodgson	Gate-keepers growth on carbon-nanotubes for high flux and ultra-selective membranes	CI	CRGS Deakin	$18	2014	**P**
Dr. Ludovic Dumée, Mr Francois-Marie Allioux, Prof. Peter Hodgson	Revealing nanoscale interactions and electro-migration mechanisms during desalination by electro-dialysis in mixed solvents by SANS	CI	AINSE/ANSTO	$16	2015-2017	**P**
Dr. Kevin Magniez, **Dr. Ludovic Dumee,** Dr. Jeff Church, A/Prof. Bronwyn Fox	Nano-initiated thermo-oxidative stabilisation of PAN-based carbon fibre precursors	CI	IFM Small Grant	$20	2014	**P**
Lingxue Kong, Wei Duan, Abbas Kouzani, Asim Bhatti, Wenrong Yang, **Ludovic Dumée**	High precision sub-stage with high sensitivity load cell for FIB-SEM: towards customized in-situ materials characterization	CI	RESS Deakin	$55	2014	**P**
Associate Professor Mikel Duke, Prof. John Orbell, Dr. **Ludovic Dumée**	CRN - NCEDA PhD Top Scholarship – Mrs. Rackel Reis	CI	National Centre of Excellence in Desalination	$25	2013-2016	**P**
Prof. Peter Hodgson, Prof. Lingxue Kong, **Dr Ludovic Dumée**	CRN - NCEDA PhD Top Scholarship – Mr.	CI	National Centre of Excellence in Desalination	$25	2013-2016	**P**

	Bao Lin					
Dr. Ludovic Dumée, Dr Li He, Dr. Mary She, Ms Chunfang Feng, Mr Francois-Marie Allioux, Dr. Chi Huynh, Dr. Stephen Hawkins, Prof. Peter Hodgson, Prof. Lingxue Kong	Investigating formation of high density nano-pores across pre-functionalized single graphene sheets by gamma-ray lithography	CI	AINSE Award 2014 Round 1 11062	$12	2014	**P**
Dr. Ludovic Dumée, Dr. Leonora Velleman, Dr. Li He, Dr. Mary She, Prof. Lingxue Kong, Prof. Peter Hodgson, Prof. Mikel Duke, Prof. Stephen Gray, Dr. Kallista Sears, Dr. Paolo Falcaro, Dr. Chi Huynh, Dr. Stephen Hawkins	Patterned functionalization, stitching and decoration of carbon nanotube and graphene porous composites by gamma-irradiation	CI	AINSE Award 2013 Round 1	$6	2013	**P**
Dr. Ludovic Dumée, Dr. Li He, Dr. Li Shu, Dr. Peter King, Dr. Andrew Poole	Bio-fouling resistant membranes by high velocity embedment of antimicrobial particles	CI	IFM Small Grant 2013	$12	2013	**P**

Other merit research grants:

Australian Synchrotron (Clayton, Victoria – Australia)

- Principal investigator on grants number **M2569** (2010), **M6410** (2013), **M7937** (2014), **M8860** (2015), **M10645, M11313,** (2016), **M12173** (2017) (SAXS/WAXS beamline), **M7686** (2014), **M10254** (2015) (IR beamline) and **M11681** (XAS beamline) to investigate the properties of carbon nanotube composites (alignment and thermal expansion); and the in-situ formation of meso-porous silica particles for drug delivery.

- Principal co-investigator on grant numbers **M5826, M6414, EU8772, M5863, M9332, EU10894** (SAXS/WAXS, IR spectroscopy and Powder diffraction beamlines - 2013).

Despite having no direct financial value, the research value of these grants is highly important as the Australian Synchrotron is often the only facilities able to resolve fundamental structures of meso- or micro- porous materials in Australia. As a guideline, industrial beamtime at the Australian Synchrotron may reach up to 10,000 AUD/day on the SAXS beamline depending on the setup desired. These grants are therefore highly valuable.

9. University committees and service

- **2022-current: Khalifa University, RIC2D center on graphene and 2D nanomaterials.** I was asked to take the Theme lead position on Decarbonization within the RIC2D center in September 2023 led by Prof. Hassan Arafat. I am in charge of the outreach activities on Decarbonization linking industries and collaborators to center members and leading various initiatives on advanced separation strategies with 2D nanomaterials to support decarbonization. I also co-chair the 2024 conference on Decarbonization with 2D nanomaterials organized by RIC2D.
  I was selected in September 2022 as a CAPEX and equipment sub-committee member, supported the center and its Director with management of equipment planning for the center.
- **2021-current: Khalifa University, Research and Innovation Center on CO2 and H2 (RICH),** In January 2021, I started organizing the RICH seminar series (monthly seminars organized online with global leaders in the area of renewable energies CO_2 and hydrogen technologies and innovative materials development). To date, we organized 14 seminars within just over 18 months. I also became in September 2021 a Theme Lead within RICH on CO_2 utilisation and joined the leadership team of RICH.
  I was also asked by the RICH director to lead the laboratory retrofitting effort in September 2021, and supported the setup, planning and follow up of the 4 RICH laboratories, through safety design of lab space, developing a complete chemical inventory and new safety protocols for the center. I am now the co-custodian of the RICH laboratories along with Prof. Vega, and support safety protocols as well as provide pastoral care to the many activities and students within the center.
- **2021-current: Khalifa University, Department of Chemical Engineering,** postgraduate committee member, dealing with new syllabus proposition for our postgraduate courses, as well as supporting the chair of the committee Prof. Cheng Kui and as chair of multiple student report and defences
- **2014-2020: Deakin University,** I was privileged to sit as a junior member of various grant and stirring committees, supporting decision making and providing technical or management-advice to senior members. While on the board of the Materials Science and Engineering panel at ANSTO/AINSE (see details of past roles in section k of this application), I became in 2017, the youngest ever committee chair appointed at AINSE, directly managing yearly over 1M $US of funding in the form of students grants, equipment access and travel funds. I was also heavily involved at Deakin University on the Circular Economy stirring committee, which defined a white paper for management on strategies for the university and participating in the allocation of >500k $US of funding yearly for competitive internal projects. At Deakin also, I was the youngest member of the stirring committee of the TERI – Deakin Bio-Nanotech center, established between India and Australia for the joint research center setup in Gurgaon (Gujarat, India). I supported the establishment of the center, participated in PhD students' recruitment campaigns, supported EHS regulations development and advised on general research and managerial aspects.