Dr. Eirini Goudeli

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Professional Appointments

7/2026 - present	Associate Professor, Department of Chemical Engineering, University of Patras, Greece.
1/2026 – 7/2026	Associate Professor, Department of Chemical Engineering, University of Melbourne, Australia.
6/2025 – 9/2025	Interim Associate Dean International Engagement, Faculty of Engineering and Information Technology, University of Melbourne, Australia.
8/2023 - 3/2026	Assistant Dean International Engagement, Faculty of Engineering and Information Technology, University of Melbourne, Australia.
1/2023 – 12/2025	Senior Lecturer, Department of Chemical Engineering, University of Melbourne, Australia.
8/2018 - 12/2022	Lecturer, Department of Chemical Engineering, University of Melbourne, Australia.
1/2017 - 6/2018	Post-doctoral Research Associate, Mechanical Engineering, University of Minnesota, USA.

Education

2021	Graduate Certificate in University Teaching, The University of Melbourne, Australia.
2016	PhD, Mechanical & Process Engineering, ETH Zürich, Switzerland.
2012	Diploma in Chemical Engineering, University of Patras, Patras, Greece.

Awards

2025	Smoluchowski Award, GAeF Association, European Aerosol Conference (EUR2,000).
2024	Outstanding Research Award, School of Chemical & Biomedical Engineering, The University of Melbourne.
2024	Sabic Young Professional Award, American Institute of Chemical Engineers (US$2,000).
2020	Selby Research Award, The University of Melbourne – The University of Sydney (AU$21,000).
2019	Early Career Researcher Excellence Award, The University of Melbourne, Australia (AU$2,500).
2018	Inaugural GAeF Award for Outstanding PhD in Aerosol Science, Intl. Aerosol Conference (US$1,000).
2017	1st Best Poster Award at Particle Technology Forum, AIChE Annual Meeting, Minneapolis, MN, USA.
2016	ETH Medal for Outstanding PhD Thesis, ETH Zürich (CHF 5,000).
2015	3rd Best Poster Award at Particle Technology Forum, AIChE Annual Meeting, Salt Lake City, UT, USA.
2014	Best Presentation Award, Fall Meeting, Materials Research Society, MA, USA.
2013	Best Poster Award on Aerosol Fundamentals, European Aerosol Conference, Prague, Czech Republic.
2007-11	Undergraduate Student Excellence Award, University of Patras, annually.

Research Interests

- Nanoparticle and Aerosol Technology, Combustion, Flame Spray Pyrolysis, Aerosol deposition
- Multiscale modeling & simulation of aerosol reactor design, aerosol particle dynamics & growth, chemical reactions
- Molecular Simulations, Statistical Mechanics, reactive Molecular Dynamics
- Polymer nanocomposites, mechanical properties, nanoparticle interactions with biological interfaces

I. Research

A. Book Chapters

2. Goudeli, E., "Formation and Growth of Fractal-like Agglomerates and Aggregates in the Gas-Phase" in "Frontiers of Nanoscience – Computational Modelling of Nanomaterials", Elsevier, Jan 2020, ISBN: 9780128214954. ***Invited***
1. Goudeli, E., "Mesoscale Modelling of Nanoparticle Formation" in "Metal Oxide Nanoparticles Formation, Functional Properties and Interfaces", Wiley, Sep 2021, ISBN: 9781119436744. ***Invited***

B. Refereed Journal Publications ("†" equal contribution, "*" corresponding author)

2026

64. Mukasyan, A.S., Manukyan*, K.V., Goudeli*, E., Pratsinis, S. E., Shuck, C.E., and Specchia, S., "Next-Generation Materials and Devices by Combustion Processes", *Progress in Material Science*, *accepted*. [IF: 42.9]
63. Zhang, J., Chen, G., Goudeli, E., and Kentish*, S.E. "Ion transport and thermodynamics in a cation exchange membrane under experimentally relevant conditions: an atomistic study", *Polymer*, *accepted*. [IF: 5.1]

62. Fernando, T. S. M., Ng, K. M., Yosri, M., Goudeli, E., Talei*, M. "Formation and deposition of silica nanoparticles during biomethane combustion: a low-order modelling approach", *Aerosol Science & Technology*, 1-19 (2026). [IF: 2.2]
61. Metschan, P., Kretzschmar, A., Tempel, H., Goudeli, E., Scholes, C.A., Eichel*, R-A., "Ammonia adsorption by polyacrylonitrile-based carbon-nanofibers", *Industrial & Engineering Chemistry Research* (2026). [IF: 3.9]
60. Mahmoud, A., Goudeli, E., Mumford, K., and Scholes*, C. A., "Directional gas diffusion in liquid crystal doped cellulose triacetate membranes: Insights from molecular dynamics and time-lag measurements", *Industrial & Engineering Chemistry Research*, 65, 11701 (2026). [IF: 3.9]
59. Fakharnezhad, A., Berry, J. D., and Goudeli*, E. "Soot growth by monodisperse particle dynamics model coupled with Computational Fluid Dynamics", *Aerosol Research*, *accepted*.
61. 58. Song J., Saini, D., Berry J. D., Goudeli*, E., "Equation of State of Cryogenic H_2/Air and He/Air Mixtures by Molecular Dynamics Simulations", *Fluid Phase Equilibria*, 114739. [IF: 2.7]
57. Li, H., Goudeli, E., Teleki, A., and Sotiriou*, G. "Biomedical applications of nanoparticles made by flame spray pyrolysis", *Progress in Energy and Combustion Science*, 113, 101272 (2026). [IF: 37] ***Invited review***
56. Fernando, T. S. M., Ng, K. M., Yosri, M., Goudeli, E., Talei*, M. "Formation and deposition mechanisms of silica nanoparticles during biomethane combustion: A numerical study", *International Journal of Heat and Mass Transfer*, 256, 128119 (2026). [IF: 6.6]
55. Mukut, K. M., Goudeli, E., Kelesidis, G.A., and Roy*, S., "Elucidating pore and surface features of soot nanoparticles using Molecular Dynamics simulations", *Fuel*, 406, 136692 (2026). [IF: 7.4]

2025

54. Shin, S., Kim, C-J., Goudeli, E., Faria, M., Cortez-Jugo, C., and Caruso*, F., "Engineering Metal–Phenolic Network Materials through Compositional Tuning of Phenolic Molecules", *Small*, 21, e09224. [IF: 12.1]
53. Fakharnezhad, A., Kelesidis, G. A., Berry, J. D., and Goudeli*, E. "Nucleation, surface growth and coagulation of soot by hierarchical modeling", *Powder Technology*, 469, 121747 (2026). [IF: 4.6]
52. Zeng, L., Eardley, J. C., Franks, G. V., and Goudeli*, E., "Implementation of a Yukawa force model in polymer-induced bridging flocculation of hematite particles using CFD-DEM.", *Advanced Powder Technology*, 36(12), 105096 (2025). [IF: 4.5]
51. Edirisinghe, E.A.A.V., Perera*, M. S. A., Elsworth, D., Abu Rowin, W. A., Matthai, S. K., and Goudeli, E., "Inertia-driven flow dynamics across rock fracture intersection: Experimental insights into subsurface reservoir flows", *Int. J. Rock Mech. Mining Sci.*, 195, 106313. [IF: 7.5]
50. Pham, Q. H., Zhang, Y., Doan, B., Kanehashi, S., Goudeli E., Scholes*, C. A., "Polymeric membranes for methanol dehydration to dimethyl ether", *Journal of Membrane Science*, 124489 (2025). [IF: 9]
49. Ngo, M. P., Goudeli E., Scholes*, C. A., "Efficient electrochemical hydrogen compression based on high-crystallinity polymeric membrane electrolytes", *Chemical Engineering Journal*, 165326 (2025). [IF: 13.2]
48. Fronzi*, M., Stampfl, C., Ellis, A. V., and Goudeli*, E., "Quantum-Assisted Machine Learning Screening for Sustainable Anode Discovery in Lithium-Ion Batteries" (2025), *Journal of Power Sources*, 652, 237347. [IF: 8.1]
47. Liu, Z., Goudeli, E., Guo*, R., Xie, H., Luo, Q., Zhao, L., Xu, W., Richardson, J.J., Xu, W., Caruso*, F., and Pan*, S., "Flame synthesis achieves compositionally tailorable high-entropy metal-containing nanomaterials", *Nature Chemistry*, 1-8. [IF: 20.2]
46. Sherrell*, P. C., Xie, F., Corletto, A., Barlow, A., Park, D., Zhang, J., Usman, K. A. S., Chaparro, D., Šutka, A., Razal, J., Goudeli E., Ellis*, A. V., "Piezo-Electro-Catalytic Hydrogen Production via Piezoelectric Fluoropolymers", *Advanced Energy and Sustainability Research*, 2500045 (2025). [IF: 6.2] ***Front cover***
45. Chaparro, D., Goudeli*, E. "Computational modeling and design of engineered nanoparticles for biomedical applications", *Nanoscale*, **17**, 9705-9737 (2025). [IF: 5.8] ***Invited review, "Emerging Investigators 2025"***
44. Ganguly, A., Mukut, K. M., Roy, S., Kelesidis, G. A. and Goudeli*, E., "Diagnostics of soot precursor molecules during nucleation by acetylene pyrolysis", *Aerosol Research*, **3**, 185-203 (2025).
43. Fakharnezhad, A., Saad, D. M., Kelesidis, G. A., and Goudeli*, E. "Nucleation Rate of Soot by n-Heptane Pyrolysis", *Aerosol Science & Technology*, **59**, 1137-1150 (2025). [IF: 2.8]. https://aaarpubs.org/articles/ast-article-highlight-first-order-consumption-of-heptane-to-form-carbon-black-a-case-for-chemical-nucleation, ***Summer 2025 Particulars Issue***
42. Lei, Y., Dontschuk, N., Kim, S., Goudeli, E., Liu, L. Scholes, C.A., and Kentish*, S.E. "Polydopamine as a hydrogen radical scavenger to prevent embrittlement of steel", *International Journal of Hydrogen Energy*, **101**, 419-426 (2025). [IF: 8.1]
41. Komljenovic, R., Sherrell, P. C., Goudeli, E., Rezk*, A. R., Yeo, L. Y., "Piezo-to-Piezo (P2P) Conversion: Simultaneous β-Phase Crystallization and Poling of Ultrathin, Transparent and Freestanding Homopolymer PVDF Films via MHz-Order Nanoelectromechanical Vibration", *Materials Horizons*, **12**, 1207-1222 (2025). [IF: 14.356]
40. Edirisinghe, E.A.A.V., Elsworth, D., Matthai, S.K., Goudeli, E., and Perera*, S. A. "Particle transport in fractured

geological reservoirs accommodating fluid inertia and turbulence", *Journal of Rock Mechanics and Geotechnical Engineering* (2025), *accepted*. [IF: 7.3].

2024

39. Chaparro, D., Goudeli*, E. "Shape-dependent oxidation rates of nano-structured silver particles", *The Journal of Chemical Physics*, **161**, 12 (2024). [IF: 3.6]
38. Wang, Y., Goudeli*, E., "The Onset of Aerosol Au Nanoparticle Crystallization: Accretion & Explosive Nucleation", *Nanoscale*, **16**, 17942-17953 (2024). [IF: 5.8]
37. Mukut, K. M., Ganguly, A., Goudeli, E., Kelesidis, and G.A., Roy*, S., "Physical, Chemical and Morphological Evolution of Incipient Soot Obtained from Molecular Dynamics Simulation of Acetylene Pyrolysis", *Fuel*, **373**, 132197. [IF: 7.4]
36. Mukut, K. M., Ganguly, A., Goudeli, E., Kelesidis, and G.A., Roy*, S., "Internal structure of incipient soot from acetylene pyrolysis obtained via molecular dynamics simulations", *The Journal of Physical Chemistry A*, **128**, 5175-5187. [IF: 2.944]
35. Pham Q. H., Goudeli E., Scholes*, C. A., "Carbon dioxide hydrogenation to methanol by flame-deposited CuO/ZrO_2-membrane composites", *Chemical Engineering Journal*, **489**, 151442 (2024). [IF: 13.2].
34. Schmalz, F., Kopp, W. A., Goudeli, E., and Leonhard*, K. "Reaction Path Identification and Validation from Molecular Dynamics Simulations of Hydrocarbon Pyrolysis", *International Journal of Chemical Kinetics*, 1-12 (2024). [IF: 1.187]
33. Zeng, L., Franks, G. V., and Goudeli*, E., "Aggregation and Breakage Dynamics of Alumina Particles under Shear by Coupled Computational Fluid Dynamics – Discrete Element Method", *Journal of Colloid & Interface Science*, **661**, 750-760 (2024). [IF: 9.9]
32. Kim, C.-J., Goudeli, E., Ercole, F., Ju, Y., Gu, Y., Xu, W., Quinn, J., Caruso*, F., "Particle Engineering via Supramolecular Assembly of Macroscopic Hydrophobic Building Blocks", *Angewandte Chemie*, **196**, e202315297 (2024). [IF: 16.6]

2023

31. Fronzi*, M., Ellis, A. V., and Goudeli*, E., "Silicon-Based Anodes for Li Batteries: Thermodynamics, Structural Analysis, and Li Diffusion", *The Journal of Physical Chemistry Letters*, **14***,* 10388-10395 (2023). [IF: 5.7]
30. Song J., Berry J., Goudeli*, E., "Nucleation rate of N_2 and O_2 in cryogenic H_2 and He", *Journal of Physical Chemistry B*, **127**, 9976-9984 (2023). [IF: 3.5]
29. Pham Q. H., Goudeli E., Scholes*, C. A., "Separation of water and methanol vapor from hydrogen and carbon dioxide at elevated temperature through polyimide and polyimidiazole based membranes", *Journal of Membrane Science*, **686**, 121990 (2023). [IF: 9]
28. Chaparro, D., and Goudeli*, E., "Oxidation Rate and Crystallinity Dynamics of Silver Nanoparticles at High Temperature", *The Journal of Physical Chemistry C*, **127**, 13389-13397 (2023). [IF: 4.177]
27. Abdulelah, H., Keshavarz, A., Hoteit, H., Abid, H., Goudeli, E., Ennis-King, J., Iglauer*, S., "Hydrogen physisorption in earth minerals: insights for hydrogen subsurface storage", *Journal of Energy Storage*, **66**, 107440. [IF: 8.907]
26. Rahbar, H., Goudeli, E., and Kholghy*, R., "Sintering rate of Nickel nanoparticles by molecular dynamics", *The Journal of Physical Chemistry C*, **127**, 6802-6812 (2023). [IF: 4.177]

2022

25. Kim, C-J., Ercole, F., Goudeli, E., Bhangu, S. K., Chen, J., Faria, M., Quinn, J. F., and Caruso*, F., "Engineering Programmable DNA Particles and Capsules Using Catechol-Functionalized DNA Block Copolymers", *Chemistry of Materials*, **34**, 7468 (2022). [IF: 9.811]
24. Mukut, K. M., Roy*, S., Goudeli, E., "Molecules, Aromatics, and Fringe Identification and Analysis from Molecular Dynamics: A Tool for Analyzing the Molecular Structures Formed during Reactive Molecular Dynamics Simulation of Hydrocarbons", *Computer Physics Communications*, **276**, 108325 (2022). [IF: 4.39]
23. Guo, R., Goudeli, E., Xu, W., Richardson, J.J., Xu, W.*, Pan, S.*, "Exploiting Molecular Dynamics in Composite Coatings to Design Robust Super-Repellent Surfaces", *Advanced Science*, **9**, 2104331. [IF: 17.521]
22. El-Okazy, M. A., Liu, L., Abdellah, M. H., Goudeli, E., Kentish, S.*, "Gas sorption and diffusion in perfluoro(butenyl vinyl ether) based perfluoropolymeric membranes", *Journal of Membrane Science*, **644**, 120095 (2022). [IF: 9.5]

2021

21. Sharma, A., Mukut, K. M., Roy, S., Goudeli*, E., "The coalescence of incipient soot", *Carbon*, **180**, 215-225 (2021). [IF: 11.307]
20. Pan, S., Goudeli, E., Chen, J., Lin, Z., Zhong, Q-Z., Zhang, W., Yu, H., Guo, R. Xu, W. Richardson, J. J. and Caruso,

F.*, "Exploiting Supramolecular Dynamics in Metal–Phenolic Networks to Generate Metal–Oxide and Metal–Carbon Networks", *Angewandte Chemie*, **60**, 14586-14594 (2021). [IF: 16.6]

19. Shepelin, N.A., Sherrell, P.C., Skountzos, E.N., Goudeli, E., Zhang, J., Lussini, V.C., Imtiaz, B., Usman, K., Dicinoski, G.W., Shapter, J.G., Razal, J.M., Ellis A.V.*, "Interfacial Piezoelectric Polarization Locking in Printable TiCT MXene-Fluoropolymer Composites" *Nature Communications*, **12**, 1-11 (2021). [IF: 17.69]
18. Kelesidis, G. A. and Goudeli*, E., "Self-preserving size distribution and collision frequency of flame-made nanoparticles in the transition regime", *Proceedings of the Combustion Institute*, **38**, 1233-1240 (2021). [IF: 6.719]

2020

17. Eggersdorfer, M. L.† and Goudeli, E.†,*, "Structure and dynamics of fractal-like particles made by agglomeration and sintering", *AIChE Journal*, **66**, e17099 (2020). [IF: 4.04] ***Invited paper, "Futures" issue***
16. Goudeli, E., Lee J. and Hogan, C. J. Jr.*, "Silica nanoclusters binding rate coefficients from Molecular Dynamics trajectory calculations", *Journal of Aerosol Science*, **105558** (2020). [IF: 4.586]
15. Shepelin, N., Sherrell, P., Goudeli, E., Skountzos, E., Lussini, V., Dicinoski, G., Shapter, J. and Ellis, A.*, "3D printed recyclable and self-poled polymer piezoelectric generators through single-walled carbon nanotube templating", *Energy & Environmental Science*, **13**, 868 (2020). [IF: 39.71] ***Inside back cover***
14. Pan, S., Guo, R., Bertleff-Zieschang, N., Li, S., Besford, Q. A., Zhong, Q., Yun, G., Zhang, Y., Cavalieri, F., Ju, Y., Goudeli, E., Richardson, J. J. and Caruso, F.*, "Modular Assembly of Host–Guest Metal–Phenolic Networks Using Macrocyclic Building Blocks", *Angewandte Chemie*, **59**, 275 (2020). [IF: 16.6]

2019

13. Liu, B., Ranji-Burachaloo, H., Gurr, P.A., Goudeli, E. and Qiao, G.*, "A Nontoxic Reversible Thermochromic Binary System via π-π Stacking of Sulphonephthaleins", *Journal of Materials Chemistry C*, **7**, 9335 (2019). [IF: 8.07]
12. Goudeli*, E., "Nanoparticle Formation and Growth in the Gas-Phase by Molecular Dynamics", *Current Opinion in Chemical Engineering*, **23**, 155-163 (2019). [IF: 5.15] ***Invited review***

2018

11. Yang, H., Goudeli, E. and Hogan, C.J.*, "Condensation & Dissociation Rates for Gas Phase Metal Clusters from Molecular Dynamics Trajectory Calculations", *The Journal of Chemical Physics*, **148**, 164304 (2018). [IF: 4.304]
10. Spyrogianni†, A., Karadima†, K.S., Goudeli, E., Mavrantzas, V.G.*, and Pratsinis, S.E.*, "Mobility and settling rate of agglomerates of polydisperse nanoparticles", *The Journal of Chemical Physics*, **148**, 064703 (2018). [IF: 4.304]

2017

9. Goudeli, E. and Pratsinis, S.E.*, "Surface composition and crystallinity of coalescing silver-gold nanoparticles", *ACS Nano*, **11**, 11653-11660 (2017). [IF: 15.881]
8. Kelesidis, G.A., Goudeli, E. and Pratsinis, S.E.*, "Morphology and mobility diameter of carbonaceous aerosols during agglomeration and surface growth", *Carbon*, **121**, 572-535 (2017). [IF: 11.307]
7. Kelesidis, G.A., Goudeli, E. and Pratsinis, S.E.*, "Flame synthesis of functional materials and devices: Surface growth and aggregation", *Proceedings of the Combustion Institute*, **36**, 29-50 (2017). [IF: 6.719]

2016

6. Goudeli†, E., Eggersdorfer†, M.L., and Pratsinis, S.E.*, "Coagulation of agglomerates consisting of polydisperse primary particles", *Langmuir* **32**, 9276-9285 (2016). [IF: 3.882]
5. Goudeli, E. and Pratsinis, S.E.*, "Gas-phase manufacturing of nanoparticles: Molecular Dynamics and Mesoscale Simulations", *Particulate Science & Technology* **34**, 483-493 (2016). [IF: 2.356] ***Invited review***
4. Goudeli, E., Gröhn, A.J. and Pratsinis, S.E.*, "Sampling and dilution of nanoparticles at high temperature", *Aerosol Science & Technology* **50**, 591-604 (2016). [IF: 2.8] ***Editor's selection of notable papers***
3. Goudeli, E. and Pratsinis, S.E.*, "Crystallinity dynamics of gold nanoparticles during sintering or coalescence", *AIChE Journal* **62**, 589-598 (2016). [IF: 4.04]

2015

2. Goudeli, E., Eggersdorfer, M.L. and Pratsinis, S.E.*, "Aggregate characteristics accounting for the evolving fractal-like structure during coagulation and sintering", *Journal of Aerosol Science* **89**, 58-68 (2015). [IF: 4.586]
1. Goudeli, E., Eggersdorfer, M.L. and Pratsinis, S.E.*, "Coagulation – agglomeration of fractal-like particles: structure and self-preserving size distribution", *Langmuir* **31**, 1320-1327 (2015). [IF: 3.882]

C. Patents

1. Scholes C., Goudeli E., Minh P. (2024). "A membrane electrode assembly for an electrochemical hydrogen compressor". *Australian provisional application no 2024902769*.

D. Editorials

1. Elm, J., Czitrovszky, A., Held, A., Virtanen, A., Kiendler-Scharr, A., Murray, B. J., McCluskey, D., Contini, D. Broday, D., Goudeli, E., Timonen, H., Rosell-Llompart, J., Castillo, J.L., Diapouli, E., Viana, M., Messing, M., Kulmala, M., Zíková, N., & Schmitt, S. H. (2023). "Aerosol Research–a new diamond open-access journal covering the breadth of aerosol science and technology". *Aerosol Research*, 1(1), 13-16.

E. Research Grants

Funding Source	Role	Duration	Funding Amount	Status
ARENA Project EM012. May, Johns, Sandberg, Berry, Al Ghafri, Yang, Stanwix, Talei, **Goudeli**, Brear	Chief Investigator	2024-27	3,463,463 AUD	Ongoing
ARC Discovery Project DP220103715. **Goudeli**, Dagastine	Lead Chief Investigator	2022-25	381,000 AUD	Completed
Future Battery Industries CRC. Project Leader: Ellis	Researcher	2021-24	3,500,000 AUD	Completed
Future Fuels CRC RP1.3-04. Scholes, Li, **Goudeli**, Smart, Sumby, Mehta, Doonan	Associate Investigator	2021-24	563,000 AUD	Completed
ARC Centre of Excellence CE200100009. Project Leader: Galvin	Chief Investigator	2020-27	35,000,000 AUD	Ongoing
Melbourne School of Engineering (MSE) Early Career Researcher Grant. **Goudeli**	Principal Investigator	2020	10,000 AUD	Completed
Swiss National Science Foundation 200021-149144. Pratsinis, **Goudeli**, Eggersdorfer	Co-Principal Investigator	2013-16	394,000 CHF	Completed

F. Computational Grants

Funding Source	Role	Duration	Allocation, kSU	Status
National Computational Infrastructure (NCI), Adapter Allocation Scheme Q4. **Goudeli**	Lead Chief Investigator	2023	250	Completed
National Computational Infrastructure (NCI), Adapter Allocation Scheme Q3. **Goudeli**	Lead Chief Investigator	2023	250	Completed
National Computational Merit Allocation Scheme 2023. NCMAS-2023-71. **Goudeli**	Lead Chief Investigator	2023	2,800	Completed
National Computational Infrastructure (NCI), Adapter Allocation Scheme Q3. **Goudeli**	Lead Chief Investigator	2022	250	Completed
UoM Research Computing Services – NCI scheme. **Goudeli**	Lead Chief Investigator	2022	150	Completed

G. Selected Invited Presentations (underlined name is speaker)

16. Goudeli, E., "Kinetics of carbon-based nanoparticles by reactive Molecular Dynamics", Aarhus University, Denmark, 2026. ***Invited talk***
15. Goudeli, E., "Kinetics and morphological characteristics of carbon-based nanoparticles by reactive Molecular Dynamics", CNRS, Paris, France, 2026. ***Invited talk***
14. Pham, Q. H., Scholes, C., Goudeli, E., "CO_2 Hydrogenation to methanol by flame-deposited CuO/ZrO_2-membrane composites", Melbourne Energy Institute (MEI) Symposium, Melbourne, Australia, 2025. ***Invited talk***
13. Goudeli, E., "Nucleation and surface growth of carbonaceous nanoparticles: insights from reactive Molecular Dynamics simulations", International Sooting Flame (ISF) teleconference, July 2025.
12. Goudeli, E., "Optimizing Nanomaterial Synthesis: Multiscale Design in Aerosol Processes", International Conference on Nanoscience and Nanotechnology, Melbourne, Australia, 2024. ***Invited talk***
11. Goudeli, E., "Modelling approaches of aerosol nanoparticles at multiple scales", Hellenic Association of Aerosol Research (HAAR) annual workshop, Thessaloniki, Greece, 2024. ***Invited talk***
10. Goudeli, E., "Methanol production by CO2 hydrogenation using hybrid nanoparticle-membrane reactors", International Conference on Materials Innovation, Brisbane, Australia, 2023. ***Invited keynote talk***
9. Goudeli, E., "Surface growth of soot by hierarchical modelling", International Aerosol Conference, Athens, Greece,

2022. ***Invited keynote talk***

8. Goudeli, E., "Multiscale modelling of fractal-like particles", ARC CoE Minerals Annual Meeting, Canberra, 2022.
7. Goudeli, E., "Deriving the Equations of State for cryogenic hydrogen/air mixtures", Melbourne Energy Institute, Fellowship Meeting, Melbourne, 2021.
6. Goudeli, E., "Multiscale Design of Aerosol Synthesis of Nanomaterials", Marquette University, Milwaukee, WI, USA, 2019.
5. Goudeli, E., "Multiscale models to solve engineering problems", Blended Summer School on Engineering Processes, Systems and Materials (EPSM), University of Bologna, Bologna, Italy, 2019.
4. Goudeli, E., "Multiscale Design of Aerosol Synthesis of Nanomaterials", University of Queensland, Brisbane, Australia, 2019.
3. Goudeli, E., "Multiscale Design of Aerosol Synthesis of Nanomaterials", Sustainable Soft Matter Symposium, Sydney, Australia, 2018.
2. Goudeli, E., "Multiscale Design of Aerosol Synthesis of Nanomaterials", Tufts University, Boston, MA, USA, 2018.
1. Goudeli, E., "Multiscale Design of Aerosol Synthesis of Nanomaterials", RWTH Aachen, Germany, 2017 & 2018.

H. Conference Oral Presentations *in the last 4 years* (underlined name is speaker)

70. Goudeli, E., "Kinetics of carbon-based nanoparticles by reactive Molecular Dynamics", Aarhus University, Denmark, 2026. ***Invited talk***
69. Goudeli, E., "Kinetics and morphological characteristics of carbon-based nanoparticles by reactive Molecular Dynamics", CNRS, Paris, France, 2026. ***Invited talk***
68. Pham, Q. H., Scholes, C., Goudeli, E., "CO_2 Hydrogenation to methanol by flame-deposited CuO/ZrO_2-membrane composites", Melbourne Energy Institute (MEI) Symposium, Melbourne, Australia, 2025. ***Invited talk***
67. Goudeli, E., Ganguly, A., Fakharnezhad, A., Kelesidis, G.A., S.P. Roy, "Surface growth of carbonaceous nanoparticles by molecular dynamics simulations", ACS Symposium 2025, Brisbane, Australia (1-4/12/2025).
66. Goudeli, E., "Nanoscale Mechanisms of Nanoparticle Crystallization", Tohoku-Melbourne Joint Workshop, Sendai, Japan, Nov. 4-6, 2025.
65. Goudeli, E., "Nucleation of carbonaceous nanoparticles", International Sooting Flame (ISF) teleconference, July 2025.
64. Goudeli, E., "Nanoscale Mechanisms of Nanoparticle Crystallization and Oxidation during Aerosol Synthesis", Seminar at Human-centered Sensing Laboratory, ETH Zurich, Switzerland, Feb. 2025.
63. Goudeli, E., "Nucleation and surface growth of carbonaceous nanoparticles: insights from reactive Molecular Dynamics simulations", Colloquium on Aerosol Process Design for Biomedics, Catalysts, Food and Gas Sensors, ETH Zurich, Switzerland, Feb. 2025.
62. Pham, Q. H., Scholes, C., Goudeli, E., "CO_2 Hydrogenation to Methanol Using Hybrid Flame-Made CuO/ZrO_2–Polymer Membrane Reactors", AIChE, San Diego, CA, USA (27/10-1/11/2024).
61. Pham, Q. H., Scholes, C., Goudeli, E., "Carbon dioxide hydrogenation to methanol by flame-deposited CuO/ZrO2-membrane composites", European Aerosol Conference, Tampere, Finland (25-30/8/2024).
60. Wang, X., Dagastine, R., Goudeli, E., "The role of dipole moment orientation on TiO2 nanoparticle interactions", European Aerosol Conference, Tampere, Finland (25-30/8/2024).
59. Song, J., Berry, J., Goudeli, E., "Development of Equations of State at Cryogenic Conditions by Molecular Dynamics Simulations", European Aerosol Conference, Tampere, Finland (25-30/8/2024).
58. Goudeli, E., "Methanol Production by CO2 Hydrogenation in Hybrid Membrane-Nanoparticle Reactors", AIChE Annual Meeting, Orlando, FL, USA (5-10/11/2023).
57. Goudeli, E., "Methanol Production by CO2 Hydrogenation in Hybrid Membrane-Nanoparticle Reactors", AIChE Annual Meeting, Orlando, FL, USA (5-10/11/2023).
56. Ganguly, A., Wang, X., Kelesidis, G., Roy, S., Goudeli, E., "Surface Growth of Soot by Acetylene Pyrolysis Using Reactive Molecular Dynamics", AIChE Annual Meeting, Orlando, FL, USA (5-10/11/2023).
55. Zeng, L., Franks, G., Goudeli, E., "Breakage of Alumina Aggregates Under Shear By CFD-DEM Simulations", AIChE Annual Meeting, Orlando, FL, USA (5-10/11/2023).
54. Fakharnezhad, A., Kelesidis, G. A., Goudeli, E., "Nucleation Rate of Soot by n-Heptane Pyrolysis", European Aerosol Conference, Malaga, Spain (3-8/9/2023).
53. Pham, Q. H., Scholes, C., Goudeli, E., "Hybrid membrane-nanoparticle reactors for methanol production by CO_2 hydrogenation", European Aerosol Conference, Malaga, Spain (3-8/9/2023).
52. Goudeli, E., Pham, Q. H., Scholes, C., "Methanol production by CO_2 hydrogenation using hybrid nanoparticle-membrane reactors", 2023 International Conference on Materials Innovation, Brisbane, Australia (22-25/8/2023). ***Invited keynote talk***

II. Teaching

A. Lecturer

6. Introduction to Computer Programming (BSc-level), University of Patras: FS2026
5. Momentum, Mass and Heat Transfer (BSc-level), University of Melbourne: SS2022, SS2023, SS2024, SS2025
4. Digitisation in Process Industries (BSc-level), University of Melbourne: SS2022, SS2023, SS2024, SS2025
3. Chemical Engineering Thermodynamics (Masters-level), University of Melbourne: FS2021
2. Transport Processes (BSc-level), University of Melbourne: FS 2019, FS2020, FS2021
1. Heat Transfer (BSc-level), University of Minnesota: SS2018

Guest Lectures

- Invited online lecture on "Air Pollution Sources and Control" at University of Maryland, MD, USA, October 2020.
- Invited online lecture on "Particle Mechanics" at UoM, May 2021.

B. Supervision of Students

PhD student supervision

2020 –2025 Diego Fernando Chaparro Gutierrez
Research: Computational modelling of engineered nanosilver for biomedical applications
Recognitions: Clive Pratt Scholarship; Best Poster Award at Materials Oceania Conference 2022
Now: Assistant Professor, Universidad Nacional de Colombia

2022 –2025 Felix Schmalz
RWTH Aachen – The University of Melbourne joint PhD
Research: Improved Combustion and Pyrolysis Reaction Network Exploration with Reactive Molecular Dynamics

2021 – 2026 Anindya Ganguly
Research: The chemistry and optical properties of soot precursors

2021 – 2025 Lequan Zeng
Research: Aggregation dynamics of mineral particles for improved recovery
Recognitions: Best Poster Award 10th International Conference on 2025 Discrete Element Methods
Now: Process Engineer, Richdale Plastics

2021 – 2026 Arash Fakharnezhad
Research: *Ab initio* formation and growth of carbonaceous nanoparticles by hierarchical modelling
Recognitions: Clive Pratt Scholarship; Best Oral Presentation Award at Australian Combustion Symposium 2025
Now: Process Engineer, Kapture

2022 – 2026 Jiaou Song
Research: Thermodynamic properties of hydrogen-air mixtures and mixed refrigerants at cryogenic conditions
Recognitions: 3rd Best Poster Award at the Melbourne Energy Institute (MEI) Symposium 2025, Melbourne, Australia

2023 – present Tareq Moahmeed Al-Shami
Research: Modelling bubble-particle interactions for improved recovery of valuable minerals

2025 – present Sarwar Zaheer
Research: Ultrafine mineral particle aggregation using CFD-DEM

Research Projects of MSc- and BSc-level students

Master's students (ca. 20)

Xicheng Yuan, Wenqian Li, Qingfeng Li, Yanze HU, Xiaoke Wang, Mingmin Dong, Lequan Zeng, Anmin Zhu, Ramesh Shankara, Boling Shen, Chen Rong Neoh, Rahul Mahesh Gokhale, Akaash Sharma, Qisheng Li, Yuechen Qiao (U of Minnessota), Huan Yang (U of Minnessota), Samuel Wiget (ETH Zurich), Vasil Vasilev (ETH Zurich), George Kelesidis (ETH Zurich), Panagiotis Barkoutsos (ETH Zurich).

BSc students (2)
Aaron Do, Wei Hann Wong (University of Melbourne)

C. Teaching Development Programs
2019 Melbourne School of Engineering (MSE) Residential Academic Teaching Development Program.

D. Teaching Grants

Funding Source	Role	Duration	Funding Amount	Status
Dept. of Chemical Engineering, Teaching Fund for Course Development of "*Digitisation in the Process Industries*". **Goudeli**, Dagastine	Subject Coordinator	2021	25,000 AUD	Completed
University of Melbourne FlexAP *Plus 300 subjects* Grant. **Goudeli**, Harvie	Subject Coordinator	2020-21	35,000 AUD	Completed

III. Service

Internal Committees

A. Committee Chair
- PhD Advisory Committee Chair and Examiner for *ca.* 10 PhD students in the Dept. of Chemical Engineering and Dept. of Mechanical Engineering, The University of Melbourne, Australia.

B. Reviewing Scholarship Programs/Selection Committees
- Judging panel and committee member in award and scholarship programs, including *FEIT Excellence Awards in Engagement for Internationalisation* (2024-25), *Gilbert Rigg Scholarship* (2025), *Endeavour Awards* (2025), *Clive Pratt Scholarship* (2022, 2025), *Eugen Singer Award* (2022), *Carbelec Project* (2022), *Puzey Postdoc Fellowship Program* (2021), *Hansen Scholarship Program* (2020).

C. University Service
- 2023-2026 – Assistant Dean (International), FEIT, University of Melbourne, Australia.
- 2021-present – BSc Academic Advisor, University of Melbourne, Australia.
- 2019-present – Discipline advisor for student exchange for the Department of Chemical Engineering, University of Melbourne, Australia.
- 2019-21 – Course Academic Progress Committee, University of Melbourne, Australia.
- 2019 – CBE representative in MSE Engagement's "Industry Connections" working group, University of Melbourne, Australia.

External Committees

A. Editor & Editorial Board Member
- 2025, Guest Editor, Special Issue In honor of S.E. Pratsinis, *Powder Technology* Journal.
- 2023-present, Executive Editor and Editorial Board Member, *Aerosol Research* Journal (launched in 2023).
- 2021-present, ECR Editorial Board Member, *Journal of Aerosol Science*.

***B. Refereed Journal Paper Reviewing*:**
Journal reviewer in >25 journals including ACS Nano, Aerosol Science & Technology, AIChE Journal, Chemical Engineering Journal, Chemical Engineering Science, Journal of Aerosol Science, Journal of Physical Chemistry, Nanoscale Advances, Powder Technology, Proceedings of the Combustion Institute, Scientific Reports.

C. Organizing and Chairing Sessions in Scientific Conferences
Organizing Committee
- 2023 – 2025, European Aerosol Conference (EAC), Working group chair
- 2021 European Aerosol Conference (EAC), Special Session Organizer & Chair
- 2019 – present, European Aerosol Conference (EAC), Working group member

- 2019-20, University of Bologna – University of Melbourne Blended Summer School on Engineering Processes, Systems and Materials (EPSM), September 2019 & January – February 2020
- 2017, Best Poster Award committee, European Aerosol Conference, Zurich, Switzerland
- 2016, Materials & Processes Graduate Symposium, Zürich, Switzerland

Session Chair/Co-Chair

- 2019-21, American Institute of Chemical Engineers (AIChE) Annual Meeting
- 2019-20, American Association for Aerosol Research (AAAR)
- 2016 – 2019, European Aerosol Conference (EAC)

Area Chair/Co-Chair

- 2023-24, American Institute of Chemical Engineers (AIChE) Annual Meeting, Nanoparticles Area chair (elected)
- 2019-22, American Institute of Chemical Engineers (AIChE) Annual Meeting, Nanoparticles Area co-chair (elected)

PhD Examination Committee Member

- 2026, PhD Thesis Opponent, Yosef Knattrup, Aarhus University, Denmark
- 2025, PhD Thesis Examiner, Khaled Mosharraf Mukut, Marquette University, WI, USA
- 2025, PhD Thesis Examiner, Felix Schmalz, RWTH Aachen – The University of Melbourne
- 2023, PhD Thesis Reviewer, Kenee Custodio, Deakin University, Australia
- 2022, PhD Qualifying Exam Committee Member, Khaled Mosharraf Mukut, Marquette University, WI, USA
- 2022, PhD Thesis Examiner, Emmanuel Skountzos, University of Patras, Greece
- 2021, PhD Thesis Opponent, Roope Halonen, University of Helsinki, Finland

D. Grant Reviewing

- 2024 – Scientific assessment of one *2024 Swiss National Foundation (SNF) Project*.
- 2024 – Scientific assessment of one *Deutsche Forschungsgemeinschaft (DFG) German Research Foundation Proposal*.
- 2022 – Scientific assessment of one *2023 ARC Discovery Project*.
- 2020 – Scientific evaluation of one research proposal for the *ACS Petroleum Research Fund*.

E. Scientific Outreach

- 2025 – Featured in the AIChE PTF Newsletter as the 2024 SABIC Young Professional Award winner.
- 2021 – Member of the Science and Engineering Challenge team of the ARC CoE for Enabling Eco-Efficient Beneficiation of Minerals – Outreach event for primary & high school students across Australia.
- 2020 – Pursuit "Wearable devices that use human energy"

G. Society Memberships

- American Institute of Chemical Engineers (AIChE)
- The Combustion Institute – Australia and New Zealand Section
- Hellenic Association for Aerosol Research (HAAR)