

Curriculum Vitae

Personal information

Name	Joana Ferreira
Address	400 Main Street (Office E19-528), Cambridge, 02142 MA, USA
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Google Scholar	JoanaFerreira
Nationality	Portuguese
Date of birth	27 October 1993

Scientific field

Chemical Engineering

Education and training

Dates	May 2025 – Present
Main projects	Postdoctoral Associate: Doyle Research Group – Soft Matter Engineering, Department of Chemical Engineering, Massachusetts Institute of Technology (MIT, USA) <ul style="list-style-type: none">– Novel injectable hydrogel microparticles to enable the delivery of biomacromolecules.– Co-formulation strategies for high-dose subcutaneous delivery of monoclonal antibodies using microfluidics.– Characterization techniques: <i>Microrheology, advanced microscopy and spectroscopy</i> (confocal Raman and AFM), <i>biophysical and functional</i> (DSF, DSC, CD), and <i>in vivo</i> (<i>live-cell imaging, in-vivo pharmacokinetics</i>).
Dates	March 2024 – Present
Main projects	Postdoctoral Associate: Myerson Research Group, Department of Chemical Engineering, Massachusetts Institute of Technology (MIT, USA) <ul style="list-style-type: none">– Crystallization and precipitation as novel downstream purification strategies for biomacromolecules.– Continuous crystallization of therapeutic full-length monoclonal antibodies with in-line analysis, automation, and AI-based image analysis tools.– Understanding of crystallization and precipitation states and respective kinetics estimation for process control optimization.– Characterization techniques: <i>Structural characterization</i> (X-Ray crystallography and Cryo-EM), <i>advanced microscopy and imaging</i> (SEM and TEM), and <i>analytical and separation</i> (TFF, HPLC, SDS-PAGE).

	Dates	September 2022 – February 2024
	Institution	University of Porto, Faculty of Engineering (Portugal)
	Position	Lecturer: Faculty of Engineering (University of Porto, Portugal)
Main projects		<ul style="list-style-type: none"> – Taught Fluid Mechanics course for two semesters. – Designed for two separate courses – Physics and Chemical Engineering undergraduate programs. – Developed weekly exercise sessions and an exercise book with solutions. – Built midterms and final exams and provided the respective grading.
	Dates	March 2021 – February 2024
	Institution	University of Porto, Faculty of Engineering, Department of Chemical and Biological Engineering (Portugal)
	Advisor	Professor João Moreira de Campos
	Position	Postdoctoral Researcher: Transport Phenomena Research Center (CEFT)
Main projects		<ul style="list-style-type: none"> – Rheological characterization of protein (e.g. insulin, albumin) solutions: Steady and oscillatory shear rheometry for biopharmaceutical delivery. – Protein behavior in solution for a fundamental understanding of oligomeric and aggregation states. – Fabrication of PDMS microdevices for diverse applications (e.g. protein crystallization, microparticle suspensions, cell trapping). – February 2024: Delft University of Technology, Netherlands. Research group of Professor Burak Eral, Investigation of novel laser-induced strategies to crystallize biomolecules. – September 2023: Imperial College London, England. Research group of Professor Jerry Heng, Preparation of a Marie Curie Postdoctoral Fellowship and networking. – November 2022: University of Santiago de Compostela, Spain. Research group of Professor Pablo Taboada, Performance of Dynamic Light Scattering experiments to investigate the early stages of biomolecule crystallization.
International research stays	Dates	October 2016 – December 2020
	Institution(s)	<ul style="list-style-type: none"> – KU Leuven, Department of Chemical Engineering (Belgium) – University of Porto, Department of Chemical and Biological Engineering (Portugal)
	Title(s) awarded	Joint/Dual PhD degree
		<ul style="list-style-type: none"> – Doctor of Engineering Science – Chemical Engineering – Doctor of Chemical and Biological Engineering
Advisor(s) and co-advisor(s)		<ul style="list-style-type: none"> – Professor Simon Kuhn (KU Leuven) – Professor Fernando Rocha and Doctor Filipa Castro (University of Porto)
Main projects		<p>Thesis title: Protein crystallization in droplet-based microsystems</p> <ul style="list-style-type: none"> – Design and characterization of droplet-based microfluidics: Fluid dynamics and transport phenomena analysis. <ul style="list-style-type: none"> ▪ Experimental approaches: Advanced microscopy and image analysis. ▪ Numerical simulation approaches: Computational Fluid Dynamics. – Investigation of biomolecule behavior in solution.

	<ul style="list-style-type: none"> ▪ Understanding proteins' phase behavior: Crystallization kinetics, phase diagram limits, and pulsed sonication. ▪ Development of experimental protocols and design of new crystallization conditions.
Dates	September 2011 – July 2016
Institution	University of Porto, Faculty of Engineering (Portugal)
Title Awarded	Master's Degree in Chemical Engineering – Processes and Product Chemical Engineering Integrated Masters' Program (grade A, European grading scale – top 5%).
Main projects	<p>Thesis title: <i>Numerical analysis of transport processes in a microfluidic device for bacteria confinement</i></p> <ul style="list-style-type: none"> ▪ Collaboration between academia and industry. ▪ Numerical work conducted at the University of Porto, Faculty of Engineering, Portugal. Advisor: Professor João Moreira de Campos. ▪ Experimental work developed at EMPA – Swiss Federal Laboratories for Materials Science and Technology, Switzerland. Advisor: Doctor Tiago Sottomayor. <p>Extracurricular project (November 2014 – September 2015)</p> <ul style="list-style-type: none"> ▪ Study of the transient state in a tubular reactor with a packed bed of glass spheres and in a continuously stirred tank reactor: Experimental and simulation approaches.

Complete portfolio overview

Publications in international, peer-reviewed journals

11 papers in total, 9 as first author, 4 as corresponding author, 8 different journals, 156 citations (h-index = 6).

1. K. Chattaraj, **J. Ferreira**, A. Myerson, B. Trout, *Investigating Structural Biophysical Features for Antigen-Binding Fragment Crystallization via Machine Learning*, Molecular Systems Design & Engineering, 10: 377–393, 2025.
2. **J. Ferreira**, V. Domínguez-Arca, J. Carneiro, G. Prieto, P. Taboada, J. Campos, *Classical and non-classical nucleation mechanisms of insulin crystals*, ACS Omega, 9: 23364–23376, 2024.
3. **J. Ferreira**, S. Araújo, A. Ferreira, J. Teixeira, J. Campos, F. Rocha, F. Castro, *Insulin nucleation kinetics in an oscillatory flow-based platform: Protein crystallization as a highly reproducible separation process*, Chemical Engineering Research & Design, 203: 453–466, 2024.
4. **J. Ferreira**, F. Castro, *Advances in protein solubility and thermodynamics: Quantification, instrumentation, and perspectives*, CrystEngComm, 25: 6388–6404, 2023.
5. J. Carneiro, **J. Ferreira**, E. Doutel, J. Miranda, J. Campos, *Novel-PDMS based transparent suspensions suitable for fluid flow characterization by optical techniques*, Chemical Engineering Science, 280, 2023.
6. **J. Ferreira**, J. Carneiro, J. Campos, *Shear-induced crystallization and rheological analysis of a therapeutic protein*, Crystal Growth & Design, 22(11): 6440–6455, 2022.
7. **H. Van Ammel***, **J. Ferreira***, A. Kruitwagen, S. Fransen, P. Moldenaers, S. Kuhn, R. Cardinaels, *Migration of non-Brownian*

particles localized inside sheared droplets, International Journal of Multiphase Flow, 156, 2022. (*Shared first authorship).

8. **J. Ferreira**, Z. Sárkány, F. Castro, F. Rocha, S. Kuhn, *Insulin crystallization: The route from hanging-drop vapour diffusion to controlled crystallization in droplet microfluidics*, Journal of Crystal Growth, 582, 2022.
9. **J. Ferreira**, J. Opsteyn, F. Rocha, F. Castro, S. Kuhn, *Ultrasonic protein crystallization: Promoting nucleation in microdroplets through pulsed sonication*, Chemical Engineering Research & Design, 162: 249–257, 2020.
10. **Cover page: J. Ferreira**, F. Castro, S. Kuhn, F. Rocha, *Controlled protein crystal nucleation in microreactors: The effect of the droplet volume versus high supersaturation ratios*, CrystEngComm, 22(28): 4692–4701, 2020.
11. **J. Ferreira**, F. Castro, F. Rocha, S. Kuhn, *Protein crystallization in a droplet-based microfluidic device: Hydrodynamics analysis and study of the phase behaviour*, Chemical Engineering Science, 191(14): 232–244, 2018.

Books

1. **J. Ferreira** (editor-in-chief), F. Castro (editors), *Advances in Biochemical Engineering/Biotechnology series, Fundamentals of Biomolecular Crystallization: Insights into Thermodynamics*, Springer Nature, 2025 (in production phase).
 - **10 chapters** with contributions from academia and industry.
 - **First book for young researchers** in the field of biomolecular crystallization oriented towards a quantitative perspective on the fundamental concepts.
2. **J. Ferreira**, F. Castro (editors), *Advances in Biochemical Engineering/Biotechnology series, Biomolecular Crystallization across Experimentation and Modeling*, Springer Nature, 2025 (in production phase).
 - **10 chapters** with contributions from academia and industry.
 - **First book for young researchers and engineers** in the field of biomolecular crystallization oriented towards a quantitative perspective on current experimental and modeling developments.

Book chapters

1. **J. Ferreira**, F. Castro, Chapter 20: *High-throughput protein crystallization in an integrated droplet-based microfluidic platform*, Book: *Advanced Methods in Structural Biology*, Springer Nature, 347–359, 2024.

Patents

1. D. Brancazio, A. Myerson, **J. Ferreira**, et al., *Vessels Having One or More Access Regions and Related Systems and Methods*: WGS M0925.71104US00 (non-provisionally utility patent application).

Conference contributions and invited talks

Oral presentations: Total of 24 talks and 4 invited talks.

1. **J. Ferreira**, Y. Miyai, J. Mentges, A. Pandit, G. Aprile, D. Ranasinghe, V. Guo, T. Stelzer, B. Trout, D. Weuster-Botz, R. Braatz, A. Myerson, *Advancing biopharmaceutical manufacturing: Continuous crystallization of therapeutic full-length monoclonal antibodies*. AIChE Annual Meeting: Advances in New Modalities (Large Molecule, sRNA, Gene Therapy). Boston MA, USA, 2025.
2. Y. Miyai, A. Kang, **J. Ferreira**, B. Molajafari, P. Hou, N. Movilla, R. Romañach, M. Alam, C. Vlaar, J.-C. Monbaliu, T. Stelzer, A. Myerson, *Thinking in Reverse: A Case Study to Control the Polymorphism of*

Nitrofuranoin During Crystallization. AIChE Annual Meeting: Crystallization Process Development. Boston MA, USA, 2025.

3. **Y. Miyai**, H. L. Lee, A. Koishybay, **J. Ferreira**, H. Hellwig, L. Bovy, N. Movilla, N. Torres, T. Zhu, R. Romañach, M. Alam, C. Vlaar, J.-C. Monbaliu, A. Myerson, T. Stelzer, *Integration of Synthesis and Crystallization of Nitrofuranoin from Bio-Based Building Blocks and Solvents.* AIChE Annual Meeting: Continuous Processing in Drug Substance. Boston MA, USA, 2025.
4. **Y. Miyai**, N. Spoettling, K. Shutt, A. Shoulders, **J. Ferreira**, S. Ahmadi, T. Stelzer, A. Myerson, G. Stephanopoulos, *Extraction and Crystallization of Carotenoids Produced from Engineered Yarrowia Lipolitica.* AIChE Annual Meeting: Process Innovation in Bioseparations. Boston MA, USA, 2025.
5. **J. Ferreira**, Y. Miyai, A. Pandit, K. Ganko, S. Lim, K. Chattaraj, D. Ranasinghe, G. Aprile, J. Yadav, T. Stelzer, R. Braatz, B. Trout, A. Myerson, *Continuous crystallization in biopharmaceutical manufacturing: therapeutic full-length monoclonal antibodies.* 24th American Conference on Crystal Growth and Epitaxy: Biological and Biomimetic Materials. Stevenson WA, USA, 2025.
6. **Invited Talk: J. Ferreira**, *Protein crystallization in 4D: size, scale, methodology, and analysis.* EFCE Spotlight Talk – Working Party on Crystallization. Online, 2025.
7. **Outstanding Talk Award: J. Ferreira**, K. Chattaraj, K. Ganko, D. Ranasinghe, J. Yadav, T. Stelzer, R. Braatz, B. Trout, A. Myerson, *Crystallization versus precipitation states in full-length monoclonal antibodies.* 18th International Conference on the Crystallization of Biological Macromolecules: Crystals for Advances in Medicine. Tempe AZ, USA, 2024.
8. **D. Ranasinghe**, **J. Ferreira**, K. Ganko, S. Chergaoui, Y. Miyai, A. Koishybay, G. Aprile, J. Yadav, T. Stelzer, B. Trout, R. Braatz, A. Myerson, *Development of a continuous crystallization platform for monoclonal antibody (mAb) purification.* AIChE Annual Meeting: Crystallization and Precipitation of Pharmaceutical and Biological Molecules II. San Diego CA, USA, 2024.
9. **K. Ganko**, H. Al-Mahayni, **J. Ferreira**, W. Tan, Y. Wu, A. Myerson, R. Braatz, *Mechanistic Modelling, Uncertainty Analysis, and Advanced Process Control of Particle Size Distribution in Tubular Protein Precipitation.* AIChE Annual Meeting: Modeling and Control of Crystallization II. San Diego CA, USA, 2024.
10. **J. Ferreira**, D. Ranasinghe, J. Yadav, K. Chattaraj, K. Ganko, T. Stelzer, R. Braatz, B. Trout, A. Myerson, *Crystallization kinetics of full-length monoclonal antibodies across varying scales.* 29th International Workshop on Industrial Crystallization: Fundamentals. Delft, Netherlands, 2024.
11. **Invited Talk: J. Ferreira**, K. Chattaraj, D. Ranasinghe, J. Yadav, J. Carneiro, T. Stelzer, J. Campos, B. Trout, A. Myerson, *Crystallization versus precipitation states in protein solutions.* 8th European Conference on Crystal Growth: Crystallization for Food and Pharmaceutical Production + Bio-Crystallization. Warsaw, Poland, 2024.
12. F. Castro, S. Araújo, **J. Ferreira**, A. Ferreira, J. Campos, F. Rocha, *Towards protein crystallization as a tool for bio-separation: Study of insulin crystallization in a meso OFR-SPC.* 14th European Congress of Chemical Engineering: Crystallization and filtration. Berlin, Germany, 2023.
13. **J. Ferreira**, J. Carneiro, J. Campos, *Shear-induced crystallization and aggregation states in globular protein solutions.* 14th European Congress of Chemical Engineering: Advanced and new characterization techniques. Berlin, Germany, 2023.

14. **F. Castro, S. Araújo, J. Ferreira**, A. Ferreira, J. Campos, J. Teixeira, F. Rocha, *Investigation of insulin nucleation kinetics under oscillatory flow mixing*. 14th International Chemical & Biological Engineering Conference: Reaction and Separation Processes. Bragança, Portugal, 2023.
15. **J. Ferreira**, J. Carneiro, J. Campos, *Classical and non-classical mechanisms of insulin crystals*. International Symposium on Industrial Crystallization: Crystallization Fundamentals. Glasgow, Scotland, 2023.
16. **F. Castro, S. Araújo, J. Ferreira**, A. Ferreira, J. Campos, J. Teixeira, F. Rocha, *Towards protein crystallization as a tool for bio-separation: Study of insulin crystallization in a meso OFR-SPC*. International Symposium on Industrial Crystallization: Advances in industrial crystallization processes. Glasgow, Scotland, 2023.
17. **Invited Talk**: **F. Castro, J. Ferreira**, A. Ferreira, J. Campos, J. Teixeira, F. Rocha, *Protein crystallization in micro- and meso-scale devices*. 8th International School on Biological Crystallization. Granada, Spain, 2023.
18. **Invited Talk**: **F. Castro, S. Araújo, J. Ferreira**, A. Ferreira, J. Campos, F. Rocha, *Towards protein crystallization as a tool for bio-separation*. 7th European Conference on Crystal Growth: Crystallization of Biological Molecules and/or in Biological Systems. Paris, France, 2022.
19. **J. Ferreira**, J. Carneiro, J. Campos, *Shear-induced crystallization of a therapeutic protein*. Annual European Rheology Conference: Bio-rheology & Medicine. Seville, Spain, 2022.
20. **J. Carneiro, J. Ferreira**, J. Miranda, J. Campos, *Novel PDMS transparent suspensions suitable for visualization and velocimetry experiments*. Annual European Rheology Conference: Suspensions. Seville, Spain, 2022.
21. **J. Ferreira**, **F. Castro**, F. Rocha, S. Kuhn, *Enhanced control of protein crystallization in droplet-based microfluidics*. 22nd American Conference on Crystal Growth & Epitaxy: Symposium on Nucleation and Growth in Microfluidics. Online, 2021.
22. H. Van Ammel, **J. Ferreira**, A. Kruitwagen, S. Fransen, S. Kuhn, P. Moldenaers, **R. Cardinaels**, *Sheared droplets filled with non-Brownian particles: Particle distribution and droplet dynamics*. Annual European Rheology Conference: Multiphase and other complex fluids. Online, 2021.
23. **J. Ferreira**, F. Castro, F. Rocha, S. Kuhn, *Droplet microfluidic devices for protein crystallization*. 17th International Conference on the Crystallization of Biological Macromolecules: Young Scientist Short Talks. Shanghai, China, 2018.
24. **J. Ferreira**, F. Castro, F. Rocha, S. Kuhn, *Hydrodynamics and mixing dynamics in droplet-based microfluidics for protein crystallization*. 8th World Congress on Particle Technology, AIChE Meeting: Particle design, Crystallization II. Orlando FL, USA, 2018.

Poster contributions

Poster presentations: Total of 12 posters and 5 by MIT undergraduate students.

1. **J. Ferreira**, P. Doyle, A. Myerson, *From Purification to Formulation of Biomacromolecules: Novel Modalities for Targeted Drug Delivery*. AIChE Annual Meeting: Meet the Faculty and Post-Doc Candidates Poster Session. Boston MA, USA, 2025.
2. **V. Vuor**, **J. Ferreira**, Y. Miyai, R. Braatz, B. Trout, A. Myerson, *Enhanced Thermal Stability of Pembrolizumab in Crystalline Suspension Compared to Solution Formulations*. AIChE Annual

Meeting: Undergraduate Student Poster Session: Food, Pharmaceutical, and Biotechnology. Boston MA, USA, 2025.

3. C. Silva, J. Lin, Y. Miyai, **J. Ferreira**, A. Myerson, *A Modular Digital Twin for Autonomous Crystallization Experiments: AI-Based Image Analysis, Process Control, and Automation*. AIChE Annual Meeting: Undergraduate Student Poster Session: Computing and Process Control. Boston MA, USA, 2025.
4. A. Kang, Y. Miyai, **J. Ferreira**, B. Molajafari, T. Stelzer, A. Myerson, *Polymorphism Control of Active Pharmaceutical Ingredients (API) with Reverse Antisolvent Crystallization*. AIChE Annual Meeting: Undergraduate Student Poster Session: Food, Pharmaceutical, and Biotechnology. Boston MA, USA, 2025.
5. K. Shutt, A. Shoulders, N. Spoettling, Y. Miyai, **J. Ferreira**, C. Katsimpouras, T. Stelzer, A. Myerson, G. Stephanopoulos, *Extraction Efficiency of Mechanical and Chemical Methods for β -Carotene from Engineered *Yarrowia Lipolytica**. AIChE Annual Meeting: Undergraduate Student Poster Session: Food, Pharmaceutical, and Biotechnology. Boston MA, USA, 2025.
6. A. Shoulders, K. Shutt, N. Spoettling, Y. Miyai, **J. Ferreira**, C. Katsimpouras, T. Stelzer, A. Myerson, G. Stephanopoulos, *Crystallization of β -Carotene Produced from *Yarrowia Lipolytica*: Toward a Sustainable Purification Process*. AIChE Annual Meeting: Undergraduate Student Poster Session: Food, Pharmaceutical, and Biotechnology. Boston MA, USA, 2025.
7. **J. Ferreira**, D. Ranasinghe, J. Yadav, K. Chattaraj, T. Stelzer, B. Trout, A. Myerson, *Crystallization kinetics of full-length monoclonal antibodies*. Pharma Crystallization Summit – Debottlenecking Drug Development. Princeton NJ, USA, 2024.
8. D. Ranasinghe, **J. Ferreira**, T. Stelzer, B. Trout, R. Braatz, A. Myerson, *Crystallization kinetics of full-length monoclonal antibodies*. Merck-MIT Biotech Group Biologics, Vaccines, and Process Development Symposium. Cambridge MA, USA, 2024.
9. K. Ganko, H. Al-Mahayni, **J. Ferreira**, Y. Wu, A. Myerson, R. Braatz, *Mechanistic Modelling, Uncertainty Analysis, and Advanced Process Control of Particle Size Distribution in Continuous Tubular Protein Precipitation*. Integrated Continuous Biomanufacturing VI. Leesburg VA, USA, 2024.
10. **J. Ferreira**, F. Castro, F. Rocha, S. Kuhn, *Droplet microfluidic devices for protein crystallization*. 17th International Conference on the Crystallization of Biological Macromolecules: Young Scientist Short Talks. Shanghai, China, 2018.
11. **J. Ferreira**, F. Castro, F. Rocha, S. Kuhn, *A droplet-based microfluidic platform for protein crystallization*. 2nd Doctoral Congress in Engineering: Chemical and Biological Engineering. Porto, Portugal. 2017.
12. **J. Ferreira**, F. Castro, F. Rocha, S. Kuhn, *Lysozyme crystallization in a droplet-based microfluidic platform*. 6th International School on Biological Crystallization. Granada, Spain, 2017.

Teaching and mentoring

- **Lecturer:** *Fluid Mechanics* course (University of Porto) (2022 – 2024). Weekly exercises sessions, midterms/final exam preparation, designed an exercise book with solutions.
Undergraduate students: Physics Engineering and Chemical Engineering.
- **Teacher Assistant:** *Applied Physical Chemistry* course (KU Leuven) (2018 – 2020). Weekly exercises sessions, midterms/final exam preparation, designed new exercises with solutions.
Undergraduate students: Engineering Science – Chemical Engineering (Master's program).

- **Undergraduate students' (UROP) supervision.** MIT, Chemical Engineering (2024 – Present).
- **Undergraduate students' supervision.** University of Porto, Mechanical, Bioengineering and Chemical Engineering (2022 – 2024).
- **Graduate students' co-supervision.** University of Porto, Chemical Engineering (2021 – 2022).
- **Daily master's theses students' supervision.** KU Leuven, Chemical Engineering (2018 – 2020).
- **Monitor during the Junior University.** University of Porto, Chemical Engineering field, 2015.

Prizes and awards

- **Outstanding Talk award** during the 18th International Conference on the Crystallization of Biological Macromolecules: Crystals for Advances in Medicine. Tempe AZ, USA, 2024.
- **Cover page of the journal CrystEngComm**, 22(28), 2020.
- **Travel award** for the participation in the 17th International Conference on the Crystallization of Biological Macromolecules, Shanghai, China, 2018 (500 €).
- **Travel award** for the participation in the 6th International School on Biological Crystallization, Granada, Spain, 2017 (250 €).

Grant writing experience and recognition

- **Argonne National Laboratory, Advanced Photon Source.** Application for beamtime to find a new 3D structure of a co-crystal full-length monoclonal antibody: Proposal recently submitted and planned starting date.
- MSCA Postdoctoral Fellowships 2023: **Seal-of-Excellence (highly scored, > 85%, most competitive postdoctoral fellowship worldwide)** (220 000 €).
Host institution: Imperial College London, Title: *Peptide-drug conjugate (PDC) crystallization as a multifunctional approach for advanced target cancer therapeutics*.
- Fulbright Visiting Scholar Program 2022: **Highly scored (87.5%) application** but not funded due to budget restrictions.
Host institution: Massachusetts Institute of Technology, Title: *Continuous crystallization of therapeutic molecules as the next generation of biopharmaceuticals*.
- MSCA Postdoctoral Fellowships 2021: **Seal-of-Excellence (highly scored, > 85%, most competitive postdoctoral fellowship worldwide)** (220 000 €).
Host institution: Imperial College London, Title: *Protein crystalline formulations for pharmaceutical applications*.
- Swiss Government Excellence Scholarship 2020 – **Highly scored (80%–85%) application** but not funded due to budget reductions.
Host institution: ETH Zurich, Title: *Improving the understanding and tunability of the mechanisms involved in protein crystallization processes*.

Leadership and professional service

- **Scientific and societal contribution:** Highlighted in the paper series *Women Researchers at the Forefront of Crystal Engineering. Crystal Growth & Design*, 23, 3917–3930 (2023).
- **Reviewer:** Several journals from the Royal Society of Chemistry such as *Chemical Society Reviews* and *CrystEngComm*.
- **Committee member:** Member of the *Chemical Engineering Postdoctoral Advisory Board* (PAB) at MIT (2024 – Present).

- **Volunteer during the *Engineering Profession Week***: Lab sessions with high school students (Department of Chemical Engineering, University of Porto) (2017).
- **Monitor during the *Junior University***: Lab sessions with middle and high school students (Chemical Engineering field, University of Porto) (2015).
- **Volunteer in *University of Porto Fair***: Exhibitions and hands-on-activities for any age (Engineering field) (2015).
- **Organization of national/international conferences and meetings**
 - 2nd International Process Intensification Conference. Leuven, Belgium (2019).
 - 2nd Doctoral Congress in Engineering: Chemical and Biological Engineering Symposium. Porto, Portugal (2017).
 - National Meeting of Chemical Engineering Students. Porto, Portugal (2015).
 - XIV Journeys of Chemical Engineering. Porto, Portugal (2014).

Certificates and continuing education

- **Kaufman Teaching Certificate Program**: MIT, Teaching and Learning Lab (2025). Designed a complete syllabus for a new course.
- **Professional Development in Research Mentoring Certificate**: MIT (2025).
- 2nd International Process Intensification Conference. Leuven, Belgium (2019).
- Dutch Association for Crystal Growth Symposium & Annual Meeting. Beerse, Belgium (2017).
- 1st Summer School on Complex Fluid-Flows in Microfluidics. Porto, Portugal (2017).
- European BEST Engineering Competition, Case study by Deloitte. Porto, Portugal (2015).
- XIII Journeys of Chemical Engineering. Porto, Portugal (2013).

Projects with active participation

- **GSK Project** – Proposal # 72824 – Novel injectable microparticulate systems to enable delivery of macromolecules (2025 – Present).
- **FDA Project** – Contract # 75F40121C00111 – Controlled protein capture via continuous crystallization and precipitation for monoclonal antibody manufacturing (2024 – Present).
- **Project ERC Starting Grant** – MicroParticleControl – Controlled synthesis of particulate matter in microfluidics (2016 – 2020).
- **Simulation Technologies Laboratory** (2015 – 2016).