

Curriculum Vitae

Personal information

Name	Joana Ferreira	
Address	400 Main Street (Office E19-528), Cambridge, 02142 MA, USA	
Telephone(s)	+1 (617) 253-6675 (professional)	+1 (401) 359-8661 (personal)
E-mail	joanaf@mit.edu (professional)	joanamariaferreira93@gmail.com (personal)
Website	soft-biolattice.com	
LinkedIn	JoanaFerreira	
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).
International research stays	<ul style="list-style-type: none"> – 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.
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	Thesis title: <i>Protein crystallization in droplet-based microsystems</i> <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: Numerical analysis of transport processes in a microfluidic device for bacteria confinement</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	<p>11 papers in total, 9 as first author, 4 as corresponding author, 8 different journals, 156 citations (<i>h-index</i> = 6).</p> <ol style="list-style-type: none"> 1. K. Chattaraj, J. Ferreira, A. Myerson, B. Trout, <i>Investigating Structural Biophysical Features for Antigen-Binding Fragment Crystallization via Machine Learning</i>, Molecular Systems Design & Engineering, 10: 377–393, 2025. 2. J. Ferreira, V. Domínguez-Arca, J. Carneiro, G. Prieto, P. Taboada, J. Campos, <i>Classical and non-classical nucleation mechanisms of insulin crystals</i>, ACS Omega, 9: 23364–23376, 2024. 3. J. Ferreira, S. Araújo, A. Ferreira, J. Teixeira, J. Campos, F. Rocha, F. Castro, <i>Insulin nucleation kinetics in an oscillatory flow-based platform: Protein crystallization as a highly reproducible separation process</i>, Chemical Engineering Research & Design, 203: 453–466, 2024. 4. J. Ferreira, F. Castro, <i>Advances in protein solubility and thermodynamics: Quantification, instrumentation, and perspectives</i>, CrystEngComm, 25: 6388–6404, 2023. 5. J. Carneiro, J. Ferreira, E. Doutel, J. Miranda, J. Campos, <i>Novel-PDMS based transparent suspensions suitable for fluid flow characterization by optical techniques</i>, Chemical Engineering Science, 280, 2023. 6. J. Ferreira, J. Carneiro, J. Campos, <i>Shear-induced crystallization and rheological analysis of a therapeutic protein</i>, Crystal Growth & Design, 22(11): 6440–6455, 2022. 7. H. Van Ammel*, J. Ferreira*, A. Kruitwagen, S. Fransen, P. Moldenaers, S. Kuhn, R. Cardinaels, <i>Migration of non-Brownian</i>

	<p>particles localized inside sheared droplets, <i>International Journal of Multiphase Flow</i>, 156, 2022. (*Shared first authorship).</p> <p>8. J. Ferreira, Z. Sárkány, F. Castro, F. Rocha, S. Kuhn, <i>Insulin crystallization: The route from hanging-drop vapour diffusion to controlled crystallization in droplet microfluidics</i>, <i>Journal of Crystal Growth</i>, 582, 2022.</p> <p>9. J. Ferreira, J. Opsteyn, F. Rocha, F. Castro, S. Kuhn, <i>Ultrasonic protein crystallization: Promoting nucleation in microdroplets through pulsed sonication</i>, <i>Chemical Engineering Research & Design</i>, 162: 249–257, 2020.</p> <p>10. Cover page: J. Ferreira, F. Castro, S. Kuhn, F. Rocha, <i>Controlled protein crystal nucleation in microreactors: The effect of the droplet volume versus high supersaturation ratios</i>, <i>CrystEngComm</i>, 22(28): 4692–4701, 2020.</p> <p>11. J. Ferreira, F. Castro, F. Rocha, S. Kuhn, <i>Protein crystallization in a droplet-based microfluidic device: Hydrodynamics analysis and study of the phase behaviour</i>, <i>Chemical Engineering Science</i>, 191(14): 232–244, 2018.</p>
Books	<p>1. J. Ferreira (editor-in-chief), F. Castro (editors), <i>Advances in Biochemical Engineering/Biotechnology series, Fundamentals of Biomolecular Crystallization: Insights into Thermodynamics</i>, Springer Nature, 2025 (in production phase).</p> <ul style="list-style-type: none"> ▪ 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. <p>2. J. Ferreira, F. Castro (editors), <i>Advances in Biochemical Engineering/Biotechnology series, Biomolecular Crystallization across Experimentation and Modeling</i>, Springer Nature, 2025 (in production phase).</p> <ul style="list-style-type: none"> ▪ 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	<p>1. J. Ferreira, F. Castro, Chapter 20: <i>High-throughput protein crystallization in an integrated droplet-based microfluidic platform</i>, Book: <i>Advanced Methods in Structural Biology</i>, Springer Nature, 347–359, 2024.</p>
Patents	<p>1. D. Brancazio, A. Myerson, J. Ferreira, et al., <i>Vessels Having One or More Access Regions and Related Systems and Methods</i>: WGS M0925.71104US00 (non-provisionally utility patent application).</p>
Conference contributions and invited talks	<p>Oral presentations: Total of 24 talks and 4 invited talks.</p> <p>1. J. Ferreira, Y. Miyai, J. Mentges, A. Pandit, G. Aprile, D. Ranansinghe, V. Guo, T. Stelzer, B. Trout, D. Weuster-Botz, R. Braatz, A. Myerson, <i>Advancing biopharmaceutical manufacturing: Continuous crystallization of therapeutic full-length monoclonal antibodies</i>. AIChE Annual Meeting: Advances in New Modalities (Large Molecule, sRNA, Gene Therapy). Boston MA, USA, 2025.</p> <p>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, <i>Thinking in Reverse: A Case Study to Control the Polymorphism of</i></p>

- Nitrofurantoin 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 Nitrofurantoin 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. Ranansinghe, 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. Ranansinghe, 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. Ranansinghe, **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. Ranansinghe, 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. Ranansinghe, 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. Vujo, **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. Ranansinghe, 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. Ranansinghe, **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).

	<ul style="list-style-type: none"> – 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	<ul style="list-style-type: none"> – 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 <i>CrystEngComm</i>, 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	<ul style="list-style-type: none"> – 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: <i>Peptide-drug conjugate (PDC) crystallization as a multifunctional approach for advanced target cancer therapeutics</i>. – Fulbright Visiting Scholar Program 2022: Highly scored (87.5%) application but not funded due to budget restrictions. Host institution: Massachusetts Institute of Technology, Title: <i>Continuous crystallization of therapeutic molecules as the next generation of biopharmaceuticals</i>. – MSCA Postdoctoral Fellowships 2021: Seal-of-Excellence (highly scored, > 85%, most competitive postdoctoral fellowship worldwide) (220 000 €). Host institution: Imperial College London, Title: <i>Protein crystalline formulations for pharmaceutical applications</i>. – Swiss Government Excellence Scholarship 2020 – Highly scored (80%–85%) application but not funded due to budget reductions. Host institution: ETH Zurich, Title: <i>Improving the understanding and tunability of the mechanisms involved in protein crystallization processes</i>.
Leadership and professional service	<ul style="list-style-type: none"> – Scientific and societal contribution: Highlighted in the paper series <i>Women Researchers at the Forefront of Crystal Engineering. Crystal Growth & Design</i>, 23, 3917–3930 (2023). – Reviewer: Several journals from the <i>Royal Society of Chemistry</i> such as <i>Chemical Society Reviews</i> and <i>CrystEngComm</i>. – Committee member: Member of the <i>Chemical Engineering Postdoctoral Advisory Board (PAB)</i> at MIT (2024 – Present).

Certificates and continuing education

- **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).
- **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).