Curriculum Vitae

Miguel A Mendez

Personal Details

Family name:	Mendez
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Current Position

- **Chargé de cours** (full-time), Service d'Automatique et d'Analyse des Systèmes (SAAS), Brussels School of Engineering, Université libre de Bruxelles (ULB), Brussels, Belgium (October 2026–present).
- **Associate Professor** (part-time, 20%), von Karman Institute for Fluid Dynamics (VKI), Environmental & Applied Fluid Dynamics Department, Sint-Genesius-Rode, Belgium (May 2023–present).
- **Profesor Honorífico**, Experimental Aerodynamics and Propulsion Lab, Universidad Carlos III de Madrid, Leganés, Spain (February 2025–present).

Education

- **PhD in Engineering**, Université libre de Bruxelles (2013–2018). Thesis: *Dynamics of Gas Jet Impinging on Falling Liquid Films*. Supervisor: Jean Marie Buchlin (VKI).
- **Research Master in Experimental Fluid Mechanics**, von Karman Institute (2012–2013). Graduated with honours; von Karman Prize.
- **MSc in Energy and Nuclear Engineering**, University of Florence (2009–2012). GPA 110/110 *cum laude*.
- **Erasmus, 5th Year in Industrial Engineering**, ETSI Sevilla (2010–2011). GPA 8.9/10.
- **BSc in Mechanical Engineering**, University of L'Aquila (2006–2009). GPA 107/110.

Previous Positions

- **Honorary Lecturer (interim appointment)**, Université libre de Bruxelles (ULB) (2024–2026).
- **Assistant Professor**, VKI, Environmental & Applied Fluid Dynamics Department (2019–2023).
- **Postdoctoral Researcher**, VKI, Environmental & Applied Fluid Dynamics Department, and Université Paris 13, France (2018–2019).

Awards & Distinctions

Carlomagno Award 2026 for young researchers, 22nd International Symposium on Flow Visualization (ISFV22), with award lecture at ISFV22, Madrid, July 2027 (announcement). **ERC Starting Grant** (ERC-2024-STG), project RE-TWIST, 1.5 M€ (2025–2030). **Emerging Leader 2022**, by *Measurement Science and Technology*. **Outstanding Paper 2020**, by *Measurement Science and Technology*. **Solvay**

PhD Thesis Award for Research Excellence (2019). **AFVL PhD Thesis Award** for laser diagnostics in fluid mechanics, by AFVL. **Best Oral Presentation at the Annual VKI PhD Symposium 2015-2016. Best Oral Presentation at the 10th Experimental Fluid Mechanics Conference 2015**. **Theodore von Karman Prize** (best performance at the VKI Research Master program)

Research Output and Funding

- **Research Output:** 69 published journal papers (plus 4 under review), 110 conference contributions, 10 book chapters and 2 edited books (full list at the end of this CV).
- **Impact** (Google Scholar, November 2026): 2,046 citations (1,825 since 2021); h-index 25; i10-index 44.
- **Funding (last 5 years):** ∼3.1 M€ as PI (including 1.5 M€ for an ERC Starting Grant) and ∼3.4 M€ as collaborator on specific project work packages.

Teaching

(with starting year of each teaching activity)

- Fundamentals of Fluid Dynamics (22 h, 2.5 ECTS), VKI. *Started in 2017 as DEFM, adapted in 2019*
- Signal Processing, Module II (12 h, 1.5 ECTS), VKI. *Started in 2019*
- Introduction to Measurement Techniques (25% of the course), VKI. *Started in 2017*
- Tools for Scientific Computing (12 h, 1 ECTS), VKI *Started in 2022*
- Data-Driven Modal Analysis (12 h, 1 ECTS), VKI *Started in 2022*
- Machine Learning for Fluid Dynamics, Module I (12 h, 1 ECTS) at VKI. *Started as Data Driven Fluid Mechanics (DDFM) in 2021, adapted in 2025.*
- Machine Learning for Fluid Dynamics, Module II (24 h, 2 ECTS), VKI. *Started as DDFM since 2021, adapted in 2025.*
- Digital Twinning, Data Assimilation and Control (18 h, 2 ECTS), VKI. *Started in 2024.*
- Hands-on Machine Learning for Fluid Dynamics (32 h, 3 ECTS), VKI. *Started in 2021.*
- *Data-Driven Engineering (MECAH419)* (10 h), ULB. *Started in 2022*

Service to the Profession and Society

- Reviewer for: *Data-Centric Engineering*, *Journal of Fluid Mechanics*, *Physics of Fluids*, *Experimental Thermal and Fluid Science*, *Review of Scientific Instruments*, *Chemical Engineering Science*, *International Journal of Multiphase Flows*, *Industrial & Engineering Chemistry Research*, *Journal of Coatings Technology and Research*, *European Journal of Operational Research*.
- Organizer/director and main lecturer: *Hands-on Machine Learning for Fluid Dynamics* (yearly since 2021, >700 participants so far).
- Co-organizer/director: VKI Lecture Series on PIV/LPT (2021, 2024); *Introduction to Measurement Techniques* (2020); *Data Driven Fluid Mechanics* LS (2020, >230 participants; lecture notes published by Cambridge University Press); *Machine Learning for Fluid Dynamics* LS (2024, >300 participants; lecture notes published by von Karman Institute); *Flow Control* LS (2026).
- Scientific Committee member: *European Coating Symposium*, *AI Fluids*, *International Symposium on Flow Visualization (ISFV)*.

Supervision and PhD Committee Service

- I currently supervise 11 PhD students (8 as PI and 3 in international co-supervision), with seven defenses completed in 2023–2025. Details in Table 1.
- Visiting PhDs (2023–2026): L. Kyriakidis (DLR), T. Werner (TU Darmstadt), D. Gligor (UPM), I. Tirelli (UC3M), E. Saccaggi (PoliTo), J. Wang (Monash Univ.), D. Grasev (UoD), M. Belda (Czech Tech. Univ.), Z. Hoffman (RMIT, Australia), A. Pinardi (PoliMi), T. Giammaidoni (Univ. Perugia).
- I currently supervise 4 Research Master students at VKI (26 supervised in the last 5 years). 100+ MSc theses/internships supervised.
- Member of 13 PhD Committees: Kamila Zdybal (ULB), Mushin Akkurt (VKI-UGhent), Sagar Adatreo (TU Delft), Antonio Colanera (UniNapoli), Hang Wang (ULB), Michele Quattromini (Univ. Paris-Saclay), Ivan Kharsansky (ENSTA Paris), Enrico Amico (PoliTo), Riccardo Margheriti (PoliMi), Lorenzo Giunti (UniFI), Adrian Grille Guerra (TU Delft), Johan Raftevold Espelund (NTNU), Piergiorgio Scavella (UniNapoli).

Outreach and Engagement

- **Public outreach:** Contributor to the VKI Open Days, presenting fluid-dynamics demonstrations and research activities to the general public.
- **Science communication:** Featured in a popular podcast on 'Engineering & PhD Life,' discussing fluid-dynamics research, PhD training, and career perspectives (link), and in a recorded panel organized by NCP-FNRS to share feedback and strategic advice for prospective European-grant applicants (ERC, Horizon Europe) (link).
- **Open-source software and training:** Developer of the open-source tools MODULO (MODal mUltiscale pOd, see github) for modal decomposition and data-driven reduced-order modelling and SPICY (meshlesS Pressure from Image veloCimetrY, see github) for physics-constrained radial-basis-function regression for scattered data. Both tools are accompanied by public tutorials and instructional videos for the research community (see MODULO on youtube, see SPICY on youtube).

International and National Scientific Links

Besides my strong ties with UCM3 (**Universidad Carlos III de Madrid**) through my joint position and close interactions with S. Discetti and A. Ianiro, I maintain active collaborations with several international groups via student mobility, seminars, PhD committees, and joint proposals. These include close links with: A. Gosset and M. Lema (**Universidade da Coruña, UDC**); G. Cafiero, J. Serpieri, F. Avallone, G. Di Cicca and S. Pieraccini (**Politecnico di Torino**); A. Sciacchitano, F. Scarano, A. Koa, and C. Falsetti (**Delft University of Technology, TU Delft**); M. Manolesos and K. Giannakoglou (**National Technical University of Athens, NTUA**); F. Sanfedino and A. F. Urbano (**ISAE–SUPAERO**); P. Salgado, L. González, and S. Le Clainche (**Universidad Politécnica de Madrid, UPM**); Josip Basic (**University of Split**); O. Semeraro (**CNRS–LISN**); J. Hnidka (**University of Defence**); S. Brunton (**University of Washington**); B. Noack (**Shenzhen University**), T. Pagliaroli (**UNICUSANO**), R. Camussi (**UNIROMA3**), L. Magri (**Imperial College London**); L. Pastur (**ENSTA Paris**); P. Cinnella (**Sorbonne University**); M. Bähr, S. Görtz, and P. Bekemeyer (**German Aerospace Center, DLR**); B. McKeon (**Stanford University**); P. Jordan (**Institut P', CNRS–Université de Poitiers**); O. San (**University of Tennessee**); and B. Dias (**NASA Ames Research Center**), among others. In Belgium, my closest links are with E. Garone, B. Scheid and A. Parente (**ULB**); Y. Bartosiewicz (**UCLouvain**); J. Degroote (**Ghent University**); J. Helsen (**VUB**); D. Seveno and R. Vetrano (**KU Leuven**); and J. Steelant (**KU Leuven / ESA**), complemented by broader interactions with other colleagues nationwide. I aim to further expand this network through my position at ULB.

Name	University	Co-supervisor	Funding	Year	2023	2024	2025	2026	2027	2028
Domenico Fiorini	KULeuven	D. Seveno	FWO/ESA	Defended						
Fabio Pino	ULB	B. Scheid	FRIA/AM	Defended						
Matilde Fiore	UCLouvain	Y. Bartosiewicz	FRIA/SCK	Defended						
David Barreiro	UCoruna	A. Gosset	UCoruna/AM	Defended						
Romain Poletti	UGhent	J. Degroote	FWO	Defended						
Pedro Marques	ULB	B. Scheid	FRIA/ESA	Defended						
Jan van Den Berghe	UCLouvain	Y. Bartosiewicz	FRIA	Defended						
Lorenzo Schena	VUB	J. Helsen	FWO	5th						
Manuel Ratz	ULB	A. Parente	FRIA/ERC	4th						
Damien Rigutto	ULB	B. Scheid	FRIA/AM	4th						
Umberto Zucchelli	ISAE	F. Sanfedino	ESA	4th						
Francisco Monteiro	UC3M	–	VLAIO/ERC	3rd						
Samuel Ahizi	UC3M	–	VLAIO/ERC	3rd						
Sebastiano Randino	ULB	E. Garone	FRIA/ERC	3rd						
David Grasev	UoD	J. Hnidka	ERC/UoD	3rd						
Tommaso De Maria	ULB	E. Garone	ERC	2nd						
Yannick Lecomte	ULB	E. Garone	ERC	2nd						

Table 1: Summary of PhD students and project timeline (gray = active years; light blue = current academic year). The team also includes three postdoctoral researchers: A. Grava, R. Poletti and J. Van den Berghe.

Selected Invited Lectures, Seminars and Keynotes (since 2022)

1. **Carlomagno Award Lecture at the 22nd International Symposium on Flow Visualization (ISFV22)** "Beyond the Grid: Meshless Analysis and Modeling of Lagrangian Flow Data", Madrid, July 2027 (upcoming), announcement.
2. **Seminar at the techMathGroup, Institute of Thermomechanics of the Czech Academy of Sciences: "Research and Collaboration Opportunities at the von Karman Institute and the Machine Learning for Fluid Systems Group"**, hosted by Dr. M. Isoz, LinkedIn post, Prague, September 2026.
3. **PhD Course at UC3M Doctoral School (Aerospace Engineering)** "From Optimal Control to Learning-Based Control: A Unified Perspective on Adaptive Control and Reinforcement Learning", Leganés (Madrid), June 2026, link.
4. **Seminar at the MLG group, ULB: "Reinforcement Twinning: From Digital Twins to Acting Models in Thermo-Fluid Engineering"**, invited by Prof. G. Bontempi, announcement, Brussels, March 2026.
5. **Lectures at the EA2 "Advanced Post Processing Techniques Summer School": AI in Fluid Dynamics — Meshless Modal Analysis of Scattered Data**, invited by Prof. Avallone, event page, Torino, July 2025.
6. **Lectures at UC3M Doctoral School** "An Introduction to Statistical and Variational Methods for Assimilation and Real Time Modeling", invited by Prof. S. Discetti, Madrid, Jun 2025, link.
7. **Keynote Lecture on Reinforcement Twinning at the 1st AI and Fluid Mechanics Conference**, invited by Prof. Gavaises, programme, Chania, May 2025.
8. **Seminar on Machine Learning for Fluid Dynamics at BrIAS**, invited by Prof. E. Garone, video, Brussels, February 2025.
9. **Seminar on Reinforcement Twinning at the WP3 Cypher Meeting**, invited by Prof. A. Parente, event page, Madrid, February 2025.
10. **Seminar on Meshless and Binless Super-resolution for PTV**, Exp in Fluids Seminar, invited by Prof. Tropea, video, Online, November 2024.
11. **Seminar on Engineering AI at the workshop "Bridging Knowledge: Artificial Intelligence"**, organized by ASI, invited by Dr. A. Turchi, agenda, Rome, May 2024.
12. **Seminar on "Trends and Challenges in Scientific Machine Learning for Engineering"**, invited by Dr. Esposito, ASI Online Seminar Series, event page, March 2024.
13. **Keynote Lecture on Reinforcement Twinning at the 1st Cypher General Meeting**, invited by Prof. A. Parente, meeting page, Ljubljana, April 2024.
14. **Keynote Lecture on Machine Learning for Fluid Dynamics at the 12th AIAC**, invited by Prof. Özgen, METU, Ankara, September 2023, conference site.
15. **Lecture on Machine Learning for Fluids at the Short Course on CFD of ICCS**, invited by Dr. Shane, London, September 2023, course programme.
16. **Three Lectures on Deep Learning for Turbulence Modeling at the FJOH Summer School**, invited by Prof. R. Stieglitz, Karlsruhe, August 2023, school page, video.
17. **Seminar at Extrality: "Trends and Challenges in Scientific Machine Learning for Fluid Dynamics"**, invited by Dr. Mazari, Online, September 2023, event link.
18. **Seminar on Machine Learning for Engineering at IMT Nord Europe**, invited by Prof. Lacassagne, Douai, June 2023.

19. **Five Lectures on Data-Driven Modal Analysis at CAMS–AUB**, invited by Prof. Najem, Beirut, February 2023, programme, video.
20. **Lecture at JT51 on Data Processing**, invited by Prof. Zimmer, Paris, November 2022, event page.
21. **Seminar at City, University of London: "Data-Driven Fluid Mechanics"**, invited by Prof. Marinos Manoles, London, October 2022, event page.
22. **Seminar at KTH: "Comparative Analysis of Machine Learning Methods for Active Flow Control"**, invited by Prof. R. Vinuesa, Stockholm, September 2022, event page.
23. **Seminar at Universidade da Coruña (UDC) on Machine Learning for Fluid Dynamics**, invited by Prof. Gosset, Ferrol, September 2022, event page.
24. **Keynote Lecture on Data-Driven Methods for Image Velocimetry at the CFTL 2022 Meeting**, invited by Prof. Vetrano, Leuven, September 2022, meeting page.
25. **Lecture on Model-Free Control Methods at the Workshop on Complex Fluids, Centro Enrico Fermi**, invited by Prof. Biferale, Rome, July 2022, programme.

List of Publications

Under Review

[1] M. Belda, L. Schena, R. Poletti, M. Isoz, T. Hyhlik, and M. A. Mendez. "A Fast Spectral Formulation of the Multiscale Proper Orthogonal Decomposition". Submitted to *Computer Physics Communications*. 2026. arXiv: 2604.12077.

[2] R. Poletti, L. Schena, L. Koloszar, J. Degroote, and M. A. Mendez. "Reinforcement Twinning for hybrid control of flapping-wing drones". Submitted to *Data-Centric Engineering*. 2025. arXiv: 2505.18201.

[3] P. A. Marques, S. Ahizi, and M. A. Mendez. "Physics-integrated neural network modeling of heat and mass transfer in cryogenic liquid storage under static and dynamic conditions". Submitted to *Energy*. 2026. arXiv: 2609.00019.

[4] U. Zucchelli, M. A. Mendez, A. Urbano, S. Vincent-Bonnieu, P. Wenderski, and F. Sanfedino. "A partitioned fluid-structure interaction solver for two-phase sloshing and flexible spacecraft dynamics". Submitted to *Aerospace Science and Technology*. 2026. arXiv: 2609.28355.

Journal Articles Published

[5] R. Poletti, E. Bombardi, L. Koloszar, M. A. Mendez, and J. Degroote. "Characterisation and Extension of a Rigid Body Dynamics Solver Coupled with OpenFOAM® for Flight Performance Analysis of Flapping-wing Drones". In: *OpenFOAM® Journal* 6 (Oct. 2026), pp. 159–186. DOI: 10.51560/ofj.v6.150. arXiv: 2510.24518.

[6] F. Monteiro, T. De Maria, S. Ahizi, R. Abarca, G. C. A. Caridi, and M. A. Mendez. "Regime maps for sloshing in horizontal cylindrical tanks under vertical acceleration". In: *Physical Review Fluids* (2026). DOI: 10.1103/t48x-53br. arXiv: 2512.02540.

[7] J. Van den Berghe, M. A. Mendez, and Y. Bartosiewicz. "On the choking mechanism in supersonic ejectors: a one-dimensional analysis of Reynolds-averaged Navier–Stokes simulations". In: *Journal of Fluid Mechanics* 1041 (Aug. 2026), A8. DOI: 10.1017/jfm.2026.11894. arXiv: 2510.23385.

[8] P. A. Marques, A. Simonini, B. Scheid, and M. A. Mendez. "Sloshing-induced pressure drop in cryogenic propellant tanks: an experimental analysis with flow visualization". In: *International Journal of Heat and Mass Transfer* 271 (Dec. 2026), p. 129320. DOI: 10.1016/j.ijheatmasstransfer.2026.129320.

[9] M. Fiore, A. Bresciani, M. A. Mendez, and J. van Beeck. "Predicting wind loads on container ships in harbour environments through multi-fidelity modelling". In: *Ocean Engineering* 364 (Aug. 2026), p. 126928. DOI: 10.1016/j.oceaneng.2026.126928. arXiv: 2604.22882.

[10] D. Rigutto, M. Ratz, and M. A. Mendez. "A meshless data-tailored approach to compute statistics from scattered data with adaptive radial basis functions". In: *Experiments in Fluids* 67 (Aug. 2026), p. 103. DOI: 10.1007/s00348-026-04257-4. arXiv: 2511.20449.

[11] D. Barreiro-Villaverde, A. Cantiani, and M. A. Mendez. "On the complex interplay of temperature, phase change and natural convection in self-pressurization—an investigation using segregated modeling". In: *International Journal of Heat and Mass Transfer* 269 (Nov. 2026), p. 129150. DOI: 10.1016/j.ijheatmasstransfer.2026.129150. arXiv: 2512.13349.

[12] M. Ratz, A. Parente, and M. A. Mendez. "Meshless data-driven decompositions with RBF-based inner products". In: *Computers and Fluids* 315 (July 2026), p. 107133. DOI: 10.1016/j.compfluid.2026.107133. arXiv: 2511.03264.

[13] S. Randino, L. Schena, N. Coudou, E. Garone, and M. A. Mendez. "Nonlinear system identification for model-based control of waked wind turbines". In: *Data-Centric Engineering* 7 (June 2026). DOI: 10.1017/dce.2026.10051. arXiv: 2510.07336.

[14] A. Parente, G. Sorrentino, P. Sabia, C. Mounaïm-Rousselle, V. Jozsa, M. de Joannon, F. Battin Leclerc, A. Attili, F. Ferraro, P. E. Lapenna, D. Mira, A. Cuoci, G. Magnotti, A. K. Doan, K. Bizon, P. Cinnella, M. A. Mendez, L. Vervisch, E. Petlenkov, A. Onile, P. Gorm Larsen, R. Ragucci, A. Kazagic, A. Della Rocca, J. Leicher, I. El Helou, T. Lima Silva, G. Skevis, and C. Caccamo. "A roadmap for decarbonizing energy-intensive industries with renewable synthetic fuels and digital technologies". In: *Journal of Physics: Energy* (2026). DOI: 10.1088/2515-7655/ae67a4.

[15] F. Pino, E. Fracchia, B. Scheid, and M. A. Mendez. "Integral modelling and reinforcement-learning control of 3D liquid metal coating on a moving substrate". In: *Physical Review Fluids* 11 (2026), p. 044003. DOI: 10.1103/77zf-ks57. arXiv: 2503.14270.

[16] S. Ahizi, F. Monteiro, R. Abarca, and M. A. Mendez. "Real-time identification of parametric sloshing-induced heat and mass transfer in a horizontally oriented cylindrical tank". In: *International Journal of Heat and Mass Transfer* 264 (2026), p. 128707. DOI: 10.1016/j.ijheatmasstransfer.2026.128707. arXiv: 2510.19540.

[17] I. Tirelli, M. A. Mendez, A. Ianiro, and S. Discetti. "Meshless super-resolution of scattered data via constrained radial basis functions and K-nearest-neighbors-driven densification". In: *Physical Review Fluids* 11.2 (Feb. 2026), p. 024902. DOI: 10.1103/nvlc-1cmn. arXiv: 2503.04630.

[18] L. Schena, W. Munters, J. Helsen, and M. A. Mendez. "POD-Based Sparse Stochastic Estimation of Dynamic Wind Turbine Blade Deflections". In: *Journal of Sound and Vibration* (Mar. 2026), p. 119738. DOI: 10.1016/j.jsv.2026.119738. arXiv: 2504.08505.

[19] P. A. Marques, S. Ahizi, F. Monteiro, B. Scheid, and M. A. Mendez. "On the scaling of heat and mass transfer in cryogenic propellant tanks: A model-based and experimental analysis under static conditions and lateral sloshing". In: *Applied Thermal Engineering* 279 (2025), p. 127751. DOI: 10.1016/j.applthermaleng.2025.127751.

[20] L. Kyriakidis, M. Bähr, and M. A. Mendez. "Enhanced hybrid algorithm based on Bayesian optimization and Interior Point OPTimizer for constrained optimization". In: *Optimization and Engineering* (2025). DOI: 10.1007/s11081-025-09975-y.

[21] I. Tirelli, M. A. Mendez, A. Ianiro, and S. Discetti. "A meshless method to compute the proper orthogonal decomposition and its variants from scattered data". In: *Proceedings of the Royal Society A* (2025). DOI: 10.1098/rspa.2024.0526. arXiv: 2407.03173.

[22] M. Fiore, E. Saccaggi, L. Koloszar, Y. Bartosiewicz, and M. A. Mendez. "Data-driven turbulent heat flux modeling with inputs of multiple fidelity". In: *Physical Review Fluids* 10.3 (2025), p. 034606. DOI: 10.1103/PhysRevFluids.10.034606. arXiv: 2409.03395.

[23] F. Monteiro, P. Marques, A. Simonini, L. Carbonelle, and M. A. Mendez. "Experimental characterization of non-isothermal sloshing in microgravity". In: *Experimental Thermal and Fluid Science* 166 (2025), p. 111476. DOI: 10.1016/j.expthermflusci.2025.111473. arXiv: 2410.06590.

[24] F. Pino, M. A. Mendez, and B. Scheid. "Pareto front of the magnetic wiping process in dip coating". In: *Journal of Engineering Mathematics* (2025). DOI: 10.1007/s10665-025-10426-x. arXiv: 2406.14110.

[25] J. Van den Berghe, M. A. Mendez, and Y. Bartosiewicz. "An extension of the compound flow theory with friction between the streams and at the wall". In: *Journal of Fluid Mechanics* 1000 (2024), A85. DOI: 10.1017/jfm.2024.1041. arXiv: 2401.07236.

[26] F. Pino, M. A. Mendez, and B. Scheid. "Linear stability analysis of a vertical liquid film over a moving substrate". In: *Journal of Fluid Mechanics* 1000 (2024), A57. DOI: 10.1017/jfm.2024.940.

[27] D. Barreiro-Villaverde, A. Gosset, and M. A. Mendez. "On the coupling instability of a gas jet impinging on a liquid film". In: *Journal of Fluid Mechanics* 992 (2024), A11. DOI: 10.1017/jfm.2024.553. arXiv: 2309.15502.

[28] F. Pino, M. A. Mendez, and B. Scheid. "Absolute and convective instabilities in a liquid film over a substrate moving against gravity". In: *Physical Review Fluids* 9 (2024), p. 104002. DOI: 10.1103/PhysRevFluids.9.104002. arXiv: 2312.14613.

[29] L. Kyriakidis, M. A. Mendez, and M. Bahr. "A hybrid algorithm based on Bayesian Optimization and Interior Point OPTimizer for optimal operation of energy conversion systems". In: *Energy* 312 (2024), p. 133416. DOI: 10.1016/j.energy.2024.133416.

[30] D. Gligor, P. A. Marques, P. S. Sanchez, J. Porter, M. A. Mendez, and J. M. Ezquerro. "Experiments on sloshing mitigation using tuned oscillating baffles". In: *Physics of Fluids* 36 (2024), p. 092122. DOI: 10.1063/5.0225917.

[31] D. Fiorini, A. Simonini, J. Steelant, D. Seveno, and M. A. Mendez. "An experimental characterization of capillary driven flows in microgravity". In: *Microgravity Science and Technology* 36 (2024), p. 61. DOI: 10.1007/s12217-024-10142-8.

[32] R. Poletti, L. Schena, D. Ninni, and M. A. Mendez. "MODULO: a python toolbox for data-driven modal decomposition". In: *Journal of Open Source Software* 9.102 (2024), p. 6753. DOI: 10.21105/joss.06753.

[33] R. Poletti, A. Calado, L. Koloszar, J. Degroote, and M. A. Mendez. "On the unsteady aerodynamics of flapping wings under dynamic hovering kinematics". In: *Physics of Fluids* 36 (2024), p. 081901. DOI: 10.1063/5.0215531. arXiv: 2408.03222.

[34] M. Ratz and M. A. Mendez. "A meshless and binless approach to compute statistics in 3D ensemble PTV". In: *Experiments in Fluids* 65 (2024), p. 142. DOI: 10.1007/s00348-024-03878-x. arXiv: 2403.11828.

[35] L. Schena, P. Marques, R. Poletti, S. Ahizi, J. Van den Berghe, and M. A. Mendez. "Reinforcement Twinning: from digital twins to model-based reinforcement learning". In: *Journal of Computational Science* 82 (2024), p. 102421. DOI: 10.1016/j.jocs.2024.102421. arXiv: 2311.03628.

[36] P. Marques, S. Ahizi, and M. A. Mendez. "Real-time data assimilation for the thermodynamic modelling of cryogenic storage tanks". In: *Energy* 302 (2024), p. 131739. DOI: 10.1016/j.energy.2024.131739. arXiv: 2310.11399.

[37] D. Gligor, C. Peromingo, P. Salgado Sanchez, J. Porter, and M. A. Mendez. "Sloshing mitigation in microgravity with moving baffles". In: *Acta Astronautica* 219 (2024), pp. 639–652. DOI: 10.1016/j.actaastro.2024.03.047.

[38] P. Sperotto, M. Ratz, and M. A. Mendez. "SPICY: a Python toolbox for meshless assimilation from image velocimetry using radial basis functions". In: *Journal of Open Source Software* 9.93 (2024), p. 5749. DOI: 10.21105/joss.05749.

[39] D. Fiorini, A. Simonini, J. Steelant, D. Seveno, and M. A. Mendez. "Dynamic wetting experiments with nitrogen in a quasi-capillary tube". In: *Physical Review Fluids* 8 (2023), p. 124004. DOI: 10.1103/PhysRevFluids.8.124004. arXiv: 2310.05490.

[40] D. Barreiro-Villaverde, A. Gosset, and M. A. Mendez. "Damping of three-dimensional waves on coating films dragged by moving substrates". In: *Physics of Fluids* 35 (2023), p. 072110. DOI: 10.1063/5.0154144. arXiv: 2305.16139.

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