Alejandro Martínez-Calvo

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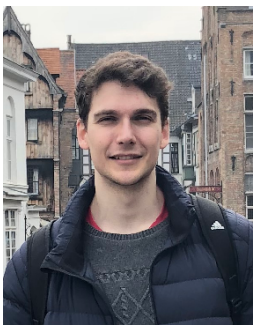

Employment and Research Experience

Feb 2017 – Present day	**Ph.D candidate in Fluid Mechanics**, Fluid Mechanics Group, Universidad Carlos III de Madrid, Spain, Prof. Alejandro Sevilla
March 2019 – Jun. 2019	**Research stay**: Department of Mechanical and Aerospace Engineering, Princeton University, U.S.A., Prof. Howard A. Stone
March 2018 – Jun. 2018	**Research stay**: TIPs (Transfers, Interfaces and Processes) at Université Libre de Bruxelles, Belgium, Prof. Benoit Scheid
Sept. 2015 – Feb. 2017	**M.Sc student and research assistant**, Department of Mathematics, Universidad Carlos III de Madrid, Profs. Luis L. Bonilla & Alejandro Sevilla
Sept. 2014 – Aug. 2015	**B.Sc student, undergraduate research assistant**, Fluid Mechanics Group, Universidad Carlos III de Madrid, Prof. Alejandro Sevilla

Education

Feb. 2017 – Dec. 2020
Ph.D. in Fluid Mechanics, Universidad Carlos III de Madrid
Thesis title: *Dynamics of Complex Capillary Flows: Stability, Rupture, and Influence of Surfactants*

Sept. 2015 – Feb. 2017
M.Sc. Applied Mathematics, Universidad Carlos III de Madrid
Highest GPA, 9.56/10 (Valedictorian)
Thesis title: *The Nonlinear States of Viscous Capillary Jets Confined in the Axial Direction*

Sept. 2011 – Jul. 2015
B.Sc. Mechanical Engineering, Universidad Carlos III de Madrid, Spain
Second highest GPA, 8.50/10 (Salutatorian)
Thesis title: *Nonlinear Dynamics of Confined Viscous Liquid Jets: Self-Sustained Oscillations Vs. Breakup.*

Awards & Fellowships

Honors & Prizes

2011	**Pre-University Extraordinary Award** (University fees payment), Ministry of Education, Spain
2013	**2013 Madrid Excellence Prize**, Autonomous Community of Madrid, Spain
2014	**2014 Madrid Excellence Prize**, Autonomous Community of Madrid, Spain
2015	**Second Best Student Record Class 2011-2015 (Salutatorian)**, B.Sc Mechanical Engineering, Universidad Carlos III de Madrid, Spain
2016	**Second award XV Certamen Arquímedes 2016**, Ministry of Education, Spain

Awards & Fellowships (continued)

2017 **Best Student Record Class 2015-2017 (Valedictorian)**, M.Sc Applied Mathematics, Universidad Carlos III de Madrid, Spain

Fellowships

Sept. 2014-Jul.2015 **Undergraduate Research Assistant Fellowship**, Ministry of Education, Spain

Sept. 2015-Feb. 2017 **M.Sc Research Assistant Fellowship** (also payment of M.Sc fees), Universidad Carlos III de Madrid

Feb. 2017-Sept.2017 **Universidad Carlos III PhD internal fellowship**, Spain

Feb. 2017-Dec.2020 **FPU doctoral fellow** (most prestigious and competitive PhD program in Spain), Ministry of Education, Spain

March 2018-Jun. 2018 **Research-stay fellowship under the competitive FPU program**, Ministry of Education, Spain. Destination: TIPs (Transfers, Interfaces and Processes), Benoit Scheid Lab, Université Libre de Bruxelles, Belgium

March 2019-Jun. 2019 **Research-stay fellowship under the competitive FPU program**, Ministry of Education, Spain. Destination: Department of Mechanical and Aerospace Engineering, Howard A. Stone Lab, Princeton University, U.S.A.

Publications

Journal Articles

1. **Martínez-Calvo, A.**, Moreno-Boza, D., & Sevilla, A. (2020a). Instability and rupture of ultra-thin viscoelastic liquid coatings. *Under review in Soft Matt. (arXiv:2005.06263)*.
2. **Martínez-Calvo, A.**, Moreno-Boza, D., & Sevilla, A. (2020b). The effect of wall slip on the dewetting of ultrathin films on solid substrates. Part I: Linear instability and second-order lubrication theory. *Under review in Phys. Fluids (arXiv:2005.06263)*.
3. Moreno-Boza, D., **Martínez-Calvo, A.**, & Sevilla, A. (2020a). The role of inertia in the rupture of ultrathin liquid films. *Under review in J. Fluid Mech. (arXiv:2005.04785)*.
4. **Martínez-Calvo, A.**, & Sevilla, A. (2020). Universal thinning of liquid filaments under dominant surface viscous forces. *Phys. Rev. Lett.*, *125*, 114502. https://doi.org/10.1103/PhysRevLett.125.114502
5. **Martínez-Calvo, A.**, Sevilla, A., Peng, G. G., & Stone, H. A. (2020). Start-up flow in shallow deformable microchannels. *J. Fluid Mech.*, *885*, A25. https://doi.org/10.1017/jfm.2019.994
6. **Martínez-Calvo, A.**, Rivero-Rodríguez, J., Scheid, B., & Sevilla, A. (2020). Natural break-up and satellite formation regimes of surfactant-laden liquid threads. *J. Fluid Mech.*, *883*, A35. https://doi.org/10.1017/jfm.2019.874
7. Moreno-Boza, D., **Martínez-Calvo, A.**, & Sevilla, A. (2020b). Stokes theory of thin film rupture. *Phys. Rev. Fluids*, *5*, 014002. https://doi.org/10.1103/PhysRevFluids.5.014002
8. **Martínez-Calvo, A.**, & Sevilla, A. (2018). Temporal stability of free liquid threads with surface viscoelasticity. *J. Fluid Mech.*, *846*, 877–901. https://doi.org/10.1017/jfm.2018.293
9. **Martínez-Calvo, A.**, Rubio-Rubio, M., & Sevilla, A. (2018). The nonlinear states of viscous capillary jets confined in the axial direction. *J. Fluid Mech.*, *834*, 335–358. https://doi.org/10.1017/jfm.2017.706

Conference Contribution

1. **Martínez-Calvo**, **A.**, Moreno-Boza, D., & Sevilla, A. (2019). Stokes description of thin liquid film break-up, In *8th International Symposium on Bifurcations and Instabilities in Fluid Dynamics*, Limerick, Ireland.
2. **Martínez-Calvo**, **A.**, Rivero-Rodríguez, J., Scheid, B., & Sevilla, A. (2019). Satellite droplet formation in the natural breakup of surfactant-laden liquid threads, In *8th International Symposium on Bifurcations and Instabilities in Fluid Dynamics*, Limerick, Ireland.
3. **Martínez-Calvo**, **A.**, Sevilla, A., & Stone, H. A. (2019a). Transient flow in shallow deformable microchannels, In *2019 PRISM Annual Research Symposium*, Princeton, U.S.A.
4. **Martínez-Calvo**, **A.**, Sevilla, A., & Stone, H. A. (2019b). Transient flow in deformable microchannels, In *STAMS 2019 (First Colloquium of the Spanish Theoretical and Applied Mechanics Society)*, Madrid, Spain.
5. **Martínez-Calvo**, **A.**, Rivero-Rodríguez, J., Scheid, B., & Sevilla, A. (2018a). Satellite-droplet formation regimes in the natural breakup of clean and surfactant-laden liquid threads, In *71st Annual Meeting of the APS DFD*, Atlanta, U.S.A.
6. **Martínez-Calvo**, **A.**, Rivero-Rodríguez, J., Scheid, B., & Sevilla, A. (2018b). Temporal analysis of surfactant-laden liquid threads: Linear stability and nonlinear dynamics, In *12th European Fluid Mechanics Conference*, Vienna, Austria.
7. **Martínez-Calvo**, **A.**, & Sevilla, A. (2017a). The role of surface viscosities in the instability of liquid threads, In *70th Annual Meeting of the APS DFD*, Denver, U.S.A.
8. **Martínez-Calvo**, **A.**, Rubio-Rubio, M., & Sevilla, A. (2016a). Non-linear regimes of axially-confined vertical capillary jets, In *11th European Fluid Mechanics Conference*, Sevilla, Spain.
9. Sevilla, A., **Martínez-Calvo**, **A.**, & Rubio-Rubio, M. (2015). Non-linear state selection of axially confined viscous liquid jets, In *68th Annual Meeting of the APS DFD*, Boston, U.S.A.

Seminars & Workshops

1. **Martínez-Calvo**, **A.**, & Sevilla, A. (2019). Micro-structure formation during drop pinch-off, In *Spanish Workshop of Fluid Mechanics*. Granada, Spain.
2. **Martínez-Calvo**, **A.**, Rivero-Rodríguez, J., Scheid, B., & Sevilla, A. (2018c). Linear stability and nonlinear dynamics of surfactant-laden liquid threads, In *Spanish Workshop of Fluid Mechanics*. Malaga, Spain.
3. **Martínez-Calvo**, **A.**, & Sevilla, A. (2017b). The effect of surface viscosity on the capillary instability of liquid threads, In *Spanish Workshop of Fluid Mechanics*. Tarragona, Spain.
4. **Martínez-Calvo**, **A.** (2016). Bailando con chorros emocionalmente inestables, In *Junior Seminar IGMB-UC3M*. Madrid, Spain.
5. **Martínez-Calvo**, **A.**, Rubio-Rubio, M., & Sevilla, A. (2016b). The nonlinear states of viscous capillary jets confined in the axial direction, In *Spanish Workshop of Fluid Mechanics*. Cadiz, Spain.
6. **Martínez-Calvo**, **A.** (2015). In *Princeton University, Seminar at Howard A. Stone Lab*. Princeton, USA.
7. **Martínez-Calvo**, **A.**, Rubio-Rubio, M., & Sevilla, A. (2015). Non-linear dynamics of axially confined viscous liquid jets: Self-sustained oscillations vs. break-up, In *Spanish Workshop of Fluid Mechanics*. Jaen, Spain.
8. Sevilla, A., & **Martínez-Calvo**, **A.** (2015). In *Université Libre de Bruxelles, Invited seminar at TIPs*. Brussels, Belgium.

Reviewer for International Journals and Conferences

- **Journal of Fluid Mechanics**

Teaching

2016/2017 **Fluid Mechanics** (Lab sessions) (15739), **Fluid transport and hydraulic machines** (15094)

2017/2018 **Fluid Mechanics** (Lab sessions) (15739), **Fluid transport and hydraulic machines** (15094)

2018/2019 **Fluid Mechanics** (Lab sessions) (15739), **Fluid transport and hydraulic machines** (15094)

2019/2020 **Fluid Mechanics** (Lab sessions) (15739), **Fluid transport and hydraulic machines** (15094)

2020/2021 **Fluid transport and hydraulic machines** (15094)

Student Advising

B.Sc & M.Sc level

2017-2020 **5 end-of-degree projects**, Universidad Carlos III de Madrid, Spain