PERSONAL DETAILS

Kolinski, John
DOB: 06/10/1984
Website: https://www.epfl.ch/labs/emsi/
Google Scholar ID (most publications available): BDzF8kMAAAAJ
ORCID: 0000-0002-5960-0487

Academic mobility	USA, Israel, Switzerland (> 12 years ex-USA research experience)
Languages	English (fluent / native speaker), German B2, French B1, Italian B1
Family	Spouse and two children, ages 7 and 4
Nationality / Residency	USA / Swiss C-permit

Education and key qualifications:

06/12/2013	PhD, Applied Physics: "The role of air in droplet impact on a smooth, solid surface" The School of Engineering and Applied Sciences, Harvard University, USA L. Mahadevan and Shmuel Rubinstein
2010	Sc.M., Applied Mathematics The School of Engineering and Applied Sciences, Harvard University, USA
2003 – 2008	B.S./B.A. Engineering Mechanics & Mathematics, UIUC, USA

Current position:

2017 – present	Assistant Professor and Group Leader, EMSI lab Institute of Mechanical Engineering, School of Engineering, EPFL, Switzerland

Previous positions:

2014 – 2017	Fulbright-Israel Postdoctoral Scholar (Mentors: Jay Fineberg and Eran Sharon) Department of Physics, The Hebrew University of Jerusalem, Israel
2014 – 06/2014	Visiting Scholar Department of Physics, The Hebrew University of Jerusalem, Israel

Selected fellowships, awards and other recognitions:

2026	Xinyue Wei: SNSF Postdoctoral Fellowship (Caltech, Datta lab)
2025	Editor's selection: Physical Review Letters
2025	Lebo Molefe: J. Fluid Mech. Emerging Scholar Best Paper Award
2025	Lebo Molefe: SNSF Postdoctoral Fellowship (MIT, Bischofberger lab)
2024	Xinyue Wei: IUTAM prize for best oral presentation in Solid Mechanics
2023	Editor's Selection: Physical Review Fluids manuscript
2023	Xinyue Wei: selected for Gordon Research Conference
2022	Distinction, Category 1 Object of Study, SNSF Imaging Competition
2022	Martin Coux: Distinction, Category 4 Video Loop, SNSF Imaging Competition
2020	Wassim Dhaouadi: JCI 10 outstanding persons of the year
2021	Emerging Investigator Soft Matter
2019	Poster award winner, 4th Edwards Symposium, DAMTP, Cambridge, UK
2018	Selected among top 3 MA-level classes, ME 412
2018	Wassim Dhaouadi: EPFL Award
2018	Martin Coux: Piaget Scientific Award
2014	Fulbright-Israel Post-doctoral Fellowship

2009	NDSEG Graduate Research Fellowship
2009	NSF Graduate Research Fellowship
2009	NSF IGERT Training Grant

Research funding and projects:

Ca. 4.97 MCHF in research funding since 2017

Ongoing Grants:

1. SNSF Project grant 236406. 750 kCHF - *The hierarchy of scales in the fracture of soft and slender bodies*
2. SNSF - NSF Lead Agency Grant 219301. 786 kCHF - *Crack path prediction and control in nonlinearly viscoelastic materials: in-silico to experiments with viscoelastic and tough hydrogels*

Prior projects:

3. Center for Imaging Grant, EPFL. 66 kCHF - *mod2: Connecting imaging to mechanics.*
4. Innosuisse Project Grant 57520.1. 349 kCHF – *Mastering Nutsche Filtration of Dense Suspensions 2.*
5. SNSF Project grant 197162. 847 kCHF – *Stability of perturbed slow cracks in 3D.*
6. SNSF International Co-operation Grant 194645. 19.2 kCHF
7. Robert Gnehm Grant. 10kCHF *awarded upon paternity to post-doc Martin Coux.*
8. Innosuisse Project Grant 43059.1. 791 kCHF (total : 1,406.3 kCHF). *Improving lubrication of automatic watch movements.*
9. Innosuisse Impulse Grant 35778.1. 513 kCHF (total : 842.3 kCHF). *Mastering Nutsche Fiiltration of Dense Suspensions 1.*
10. Piaget Scientific Award. 100 kCHF. *Fellowship awarded to post-doc Martin Coux.*
11. EPFL Start-up funds. 740 kCHF.

Funding as a post-doc / PhD Student:

12. Fulbright-Israel post-doctoral fellowship. 40 kUSD.
13. NSF Graduate Research Fellowship – NSF GRFP. 30 kUSD / year x 3 years (deferred 2 years)
14. National Defense Science and Engineering Graduate Research Fellowship – NDSEG. 50 kUSD / year x 2 years (declined 1 year).
15. Fulbright Research Grant, U. Twente, Netherlands.40 kUSD. Declined.

Selected Invited Talks since 2017 (appointment as Professor, EPFL):

May 2026	EMMC Florence, Italy
Feb. 2026	U. Florida Mechanical Engineering Seminar
Jan. 2026	KITP Soft Earth Geophysics Conference
Aug. 2025	Euromech Colloquium 655: Cutting Mechanics of Soft Tissues
Jul. 2025	Univ. Marseille Seminar
May 2025	TAM seminar, Northwestern University
Apr. 2025	Mechanical Engineering Seminar, UC Riverside
Apr. 2025	Computations in Science Seminar, University of Chicago Physics
Mar. 2025	March Meeting, American Physical Society, California

Feb. 2025	Department of Mechanics and Energetics, Institut Polytechnique de Paris
Jan. 2025	Department of Physics Seminar, Univ. Duisberg-Essen
Jan. 2025	Materials Seminar, Max Planck Insitute for Sustainable Materials, Düsseldorf
Sept. 2024	Swiss Soft Days, Lausanne
May 2024	Fracture of Soft Materials, Amerimech symposium, UT Austin
Apr. 2024	Physics of Fluids Seminar, U. Twente, Enschede NL
Feb. 2024	Mechanical Engineering Seminar, Stanford
Feb. 2024	Fluids Seminar, Caltech
Oct. 2023	Soft Matter Seminar, University of Amsterdam Physics
Sept. 2023	Mechanical Engineering Seminar, MIT
Sept. 2023	Joint Solid Mechanics / Center for Fluid Mechanics Seminar, Brown University
Sept. 2023	Polymer Science and Engineering Seminar, UMass Amherst
Jun. 2023	Strength and Durability Symposium, ETHZ
May 2023	Thermo-fluids colloquium, ETHZ
Apr. 2023	IST SLAM Seminar, Austria
Mar. 2023	APS March Meeting Session G09: Friction, Fracture and Adhesion in Soft Materials
Dec. 2022	Institute Seminar, IMES, ETHZ
Jul. 2022	BIRS workshop, Kalowna, Canada
Mar. 2021	Keynote plenary lecture, Micos 2021, TU Kaiserslautern
Nov. 2020	IMES seminar, ETH-Zurich
Nov. 2020	Mechanical Engineering Seminar, UIUC
May 2020	Keynote, 17th European Mechanics of Materials conference (canceled due to Covid)
Mar. 2020	Mechanical and Aerospace Engineering seminar, Princeton University
Mar. 2020	Civil Engineering seminar, EPFL (canceled due to Covid)
Jun. 2018	IPGP seminar, IPGP Paris
Jun. 2018	Laboratoire PMMH, ESPCI, Paris

List of Publications

I am the research mentor of the underlined authors. (*) indicates corresponding author

1. E.J. Braun, J.M. Kolinski, E. Amstad. Fatigue-resistant and tough double network granular elastomers. *Science Advances.,* accepted.
2. X. Wei, J.M. Kolinski*. Falling through the cracks: energy storage along segmented brittle crack fronts. *Phys. Rev. Lett.,* 136, 198201. 2026.
3. T. Yuan, C. Li, A. Georgopoulou, J.M. Kolinski, E. Amstad. Hydrogel-based 3D-printable stretchable pressure sensor. *Advanced Materials Technologies.* 2026.
4. U. Altuntas,J.M. Kolinski*. Microscopic measurement of the local deformation field establishes the mechanistic origin of the fatigue threshold for soft brittle materials. *Soft Matter.* 22, 3165-3173. 2026.
5. S. Jana, J.M. Kolinski, D. Lohse, V. Sanjay. Impacting spheres: from liquid drops to elastic beads. *Soft Matter*. 2026.
6. L. Molefe, T. Fullana, F. Gallaire, J.M. Kolinski. Drops can perpetually bounce over a vibrating wettable solid. *Phys. Rev. Lett.* 135, 144001. 2025 (Editor's selection)

7. T. Yuan, C. Li, J.M. Kolinski, E. Amstad. Electrostatically reinforced double network granular hydrogels. *Advanced Science* 2412566. 2025.
8. L. Molefe, G. Zampogna, J.M. Kolinski, F. Gallaire. Coating thickness prediction for a viscous film on a rough plate. *Journal of Fluid Mechanics* 1001, A59. 2024.
9. C. Li, D. Zubko, D. Delespaul, J.M. Kolinski*. 3D characterization of kinematic fields and poroelastic swelling near the tip of a propagating crack in a hydrogel. *International Journal of Fracture* 248, 221-235. 2024.
10. J. Bilotto, J.M. Kolinski, B. Lecampion, J.F. Molinari, G. Subhash, J. Garcia-Suarez. Fluid-mediated impact of soft solids. *Journal of Fluid Mechanics* 997 , A35. 2024.
11. X. Wei, C. Li, C. McCarthy, J.M. Kolinski*. Complexity of crack front geometry enhances toughness of brittle solids. *Nature Physics*. 2024.
12. *Editor's Selection* R. Kaviani, J.M. Kolinski*. Characteristic rupture height of the mediating air film beneath an impacting drop on atomically smooth mica. *Phys. Rev. Fluids* 8, 103602. 2023.
13. L. Molefe, J.M. Kolinski*. Elastocapillary menisci mediate interaction of neighboring structures at the surface of a compliant solid. *Phys. Rev. E* 108, L043001. 2023.
14. T. Benkley, C. Li, J.M. Kolinski*. Estimation of the deformation gradient tensor by particle tracking near a free boundary with quantified error. *Experimental Mechanics* 63 (7), 1255-1270. 2023.
15. C. Li, X. Wei, M. Wang, M. Adda-Bedia, J.M. Kolinski*. Crack tip kinematics reveal the process zone structure in brittle hydrogel fracture. *Journal of the Mechanics and Physics of Solids*. 178, 105330. 2023.
16. M. Kessler, T. Yuan, J.M. Kolinski, E. Amstad. Influence of degree of swelling on the stiffness and toughness of microgel-reinforced hydrogels. *Macromolecular Rapid Communications*. 44, 220864. 2023.
17. M. Shur, O. Akouissi, O. Rizzo, D.J. Colin, J.M. Kolinski, S.P. Lacour. Revealing the complexity of ultra-soft hydrogel re-swelling inside the brain. *Biomaterials.* 294, 122024. 2023.
18. R. Kaviani, J. M. Kolinski*. High resolution interferometric imaging of liquid-solid interfaces with hotnnet. *Experimental Mechanics*. 63, 309-321. 2023.
19. M. Wang, M. Adda-Bedia, J. M. Kolinski, J. Fineberg. How hidden 3D structure within crack fronts reveals energy balance. *Journal of the Mechanics and Physics of Solids*. 161, 104795. 2022.
20. J.M. Kolinski*. Surface tension scars soft solids. *Physics*. 14, 110. 2022.
21. J.M. Kolinski*, T.M. Schneider. Superspreading events suggest aerosol transmission of SARS-CoV-2 by accumulation in enclosed spaces. *Phys. Rev. E* 103, 033109. 2022.
22. *Invited contribution for JMK as young investigator* S. Zheng, S. Dillavou, J.M. Kolinski*. Air mediates the impact of a compliant hemisphere on a rigid smooth surface. *Soft Matter*. 17, 3813-3819. 2021.
23. M. Coux, J.M. Kolinski*. Surface textures suppress viscoelastic braking on soft substrates. *Proceedings of the National Academy of Sciences*. 117, 32285-32292. 2020.
24. L. Levy, J.M. Kolinski, G. Cohen, J. Fineberg. How fast cracks in brittle solids choose their path. *Physical Review Letters* 125, 175501, 2020.
25. J.M. Kolinski, R. Kaviani, D. Hade, S.M. Rubinstein. Surfing the capillary wave: wetting dynamics beneath an impacting drop. *Physical Review Fluids* 4, 123605, 2019.
26. W. Dhaouadi, J.M. Kolinski*. Bretherton's buoyant bubble. *Physical Review Fluids* 4, 123601 2019.
27. S. Dillavou, S.M. Rubinstein, J.M. Kolinski*. The virtual frame technique: ultrafast imaging with any camera. *Optics Express* 27, 8112-8120 2019.
28. I. Kolvin, J.M. Kolinski, J.P. Gong, J. Fineberg. How supertough gels break. *Physical Review Letters* 121, 135501 2018.
29. H. Jia, E. Mailand, J. Zhou, Z. Huang, G. Dietler, J.M. Kolinski, X. Wang, S. Sakar. Universal soft robotic microgripper. *Small* 15 1803870 2018.
30. J.M. Kolinski, H. Aharoni, J. Fineberg, E. Sharon. Growth and non-linear response of driven water bells. *Physical Review Fluids* 2, 042401 2017.
31. H. Aharoni, J.M. Kolinski, M. Moshe, I. Meirzada, E. Sharon. Internal stresses lead to net forces and torques on extended elastic bodies. *Physical Review Letters* 117, 124101 2016.
32. *Editor's Selection* J.M. Kolinski, L. Mahadevan, S.M. Rubinstein. Drops can bounce from perfectly hydrophobic surfaces. *Europhysics Letters*, 108, 24001 2014.
33. J.M. Kolinski, L. Mahadevan, S.M. Rubinstein. Lift-off instability during the impact of a drop on a solid surface. *Physical Review Letters* 112, 134501 2014.

34. J.M. Kolinski, S.M. Rubinstein, S. Mandre, M.P. Brenner, D.A. Weitz, L. Mahadevan. Skating on a film of air: drops impacting on a surface. *Physical Review Letters* 108, 074503 2012.
35. J.M. Kolinski, P. Aussillous, L. Mahadevan. The shape and motion of a ruck in a rug. *Physical Review Letters* 103, 17432 2009.

Arxiv pre-prints

1. O. Castanedo, J.M. Kolinski*. Marangoni-driven flow instability accelerates liquid-solid contact on atomically smooth mica. arXiv:2501.19146
2. A. Taureg, J.M. Kolinski*. Dilute concentrations of submicron particles do not alter the brittle fracture of polyacrylamide hydrogels. arXiv:2004.04137. 2021.

Conference Proceedings

1. J.M. Kolinski* Anomylous contact nucleation during impact of glycerol-water droplets. ICTAM 2024 proceedings, Daegu, Korea.
2. C. Li, X. Wei, M. Wang, M. Adda-Bedia, J.M. Kolinski*. Near crack tip deformation fields reveal the structure of the fracture process zone in brittle hydrogels. ICTAM 2024 proceedings, Daegu, Korea.
3. X. Wei, C. Li, C. McCarthy, J.M. Kolinski* Geometric complexity enhances crack toughness in brittle solids. ICTAM 2024 proceedings, Daegu, Korea.
4. J.M. Kolinski, J. Fineberg. Instability of dynamic cracks in weakly heterogeneous materials. ICTAM 2020+1, Milan.

Publicly available datasets

1. Dataset for "Complexity of crack front geometry enhances toughness of brittle solids." X. Wei, C. Li, C. McCarthy, J.M. Kolinski. Zenodo. DOI: 10.1038/s41567-024-02435-x
2. Dataset for "Elastocapillary menisci mediate interaction of neighboring structures at the surface of a compliant solid." L. Molefe, J.M. Kolinski. Zenodo. DOI: 10.5281/zenodo.8307888

Patents

A. Taureg, J.M. Kolinski, Y. Eddebarh. 2024. Monitoring system for a filtration process. Application no. EP20240173926. Application date: 2. May, 24.

Reports

J.M. Kolinski, M. Adda-Bedia. Report on CECAM Workshop: 3D Cracks and Crack Stability. 2023.

Supervision of graduate students and postdoctoral fellows:

PhD students:

1. **Ramin Kaviani:** defended Jan. 2023. Thesis title:
2. **Lebo Molefe:** defended Sept. 2025. Thesis title:
3. **Chenzhuo Li,** defended Mar. 2026. Thesis title:
4. **Xinyue Wei:** defense scheduled Apr. 2026. Thesis title:
5. **Umut Altuntas** started 2024.

3 post-doctoral fellows:

1. **Dr. James Fern**: currently Swiss federal railways.
2. **Dr. Martin Coux**: currently St. Gobain research.
3. **Prof. Pan Jia**: currently Harbin Institute of Technology.

12 MA theses.

Academic Service and Workshop Organization:

Princeton Center for Theoretical Science – *Fracture Across Fields*. Co-organized with Andrej Košmrlj, Ching-Yao Lai, Reza Moini, and Abigail Plummer.

CECAM Workshop – *3D Cracks and Crack Stability*. Co-organized with Mokhtar Adda-Bedia.

Associate Editor, Experimental Mechanics 2023-2026. Vice Chair – Fracture & Fatigue topical group, Society for Experimental Mechanics. Proposal review for ISF, Netherlands, USA. Abstract review for APS March Meeting, SEM Annual Meeting. Co-organizer of Swissmech seminar series & workshops. Co-organizer MechE Colloquium EPFL. EPFL Doctoral program in mechanics commission.

Teaching:

ME 201 – Continuum Mechanics (since Spring 2018) mandatory BA class in 4th semester with > 300 students

ME 412 – Experimental Methods in Engineering Mechanics (since Fall 2018) elective MA course, developed to provide immersive experience in application of the scientific method with experimental mechanics methods.

ME 629 – Fundamentals of fracture through fundamental papers with colleague Brice Lecampion. PhD course on Fracture mechanics offered to graduate students