Curriculum Vitae

Connor Jackman
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Employment:

- Professor, Instituto tecnológico autónomo de México (ITAM), Mexico City 1/2026- present
- Postdoc, University of Heidelberg, Germany 4/2023-4/2025
- Postdoc, Conacyt, Centro de Investigación en Matemáticas (CIMAT), Guanajuato 12/2021-12/2022
- Postdoc, Centro de Investigación en Matemáticas (CIMAT), Guanajuato 1/2019-12/2021
- Postdoc, Mathematical Sciences Research Institute (MSRI), Berkeley, California 8/2018-12/2018

Education:

- Ph.D. Mathematics, University of California Santa Cruz 6/2018

THESIS: *Free homotopy classes in some N-body problems.*
ADVISOR: Richard Montgomery.

- B.A. Mathematics, University of Nevada Reno 2011

Articles (on arXiv):

- C. Jackman. *Bi-contact structures with symmetry: local normal forms.* Journal of Fixed Point Theory and Applications 27.4: 96 (2025).
https://link.springer.com/article/10.1007/s11784-025-01235-x

- G. Bor, C. Jackman, S. Tabachnikov. *Bicycling geodesics are Kirchhoff rods.* Nonlinearity 36.7: 3572-3602 (2023).
https://iopscience.iop.org/article/10.1088/1361-6544/acd613/meta

- A. Bravetti, C. Jackman, D. Sloan. *Scaling symmetries, contact reduction and Poincaré's dream.* Journal of Physics A: Mathematical and Theoretical 56.43: 435203 (2023).
https://iopscience.iop.org/article/10.1088/1751-8121/acfddd/meta

- G. Bor, C. Jackman, S. Tabachnikov. *Variations on the Tait-Kneser Theorem.* The Mathematical Intelligencer 43.3: 8-14 (2021).
https://link.springer.com/article/10.1007/s00283-021-10119-0

- G. Bor, C. Jackman. *Revisiting Kepler: New Symmetries of an Old Problem.* Arnold Mathematical Journal: 1-33 (2022).
https://link.springer.com/article/10.1007/s40598-022-00213-2

- C. Jackman. *Secular Dynamics for Curved Two-Body Problems.* Journal of Dynamics and Differential Equations: 1-18 (2021).
https://link.springer.com/article/10.1007/s10884-021-10023-3

- C. Jackman. *Loose ends in a strong force 3-body problem.* Journal of Geometry and Physics 150 (2020).
https://www.sciencedirect.com/science/article/pii/S0393044020300188

- C. Jackman, J. Meléndez. *On the Sectional Curvature Along Central Configurations*, Regular and Chaotic Dynamics, vol. 23, no. 7-8, pp. 961-973 (2018).
https://link.springer.com/article/10.1134/S1560354718070109

- C. Jackman, J. Meléndez. *Hyperbolic Shirts fit a 4-body Problem*, Journal of Geometry and Physics Volume 123, pp 173-183 (2018).
https://www.sciencedirect.com/science/article/pii/S0393044017302243

- C. Jackman. *No hanging out in neighborhoods of infinity in the three-body problem*, Celestial Mechanics

and Dynamical Astronomy, Volume 128, Issue 2–3, pp 183-195 (2017).
https://link.springer.com/article/10.1007/s10569-016-9744-6

- C. Jackman, R. Montgomery. *No hyperbolic pants for the 4-body problem with strong potential*, Pacific Journal of Mathematics 280-2, pp 145–154 (2016).
https://msp.org/pjm/2016/280-2/p06.xhtml

Support:

- Investigador Nivel I, Sistema Nacional de Investigadores (1/2020-12/2022)
- Chancellor's Dissertation Fellowship, University of California Santa Cruz (2017)
- Chateaubriand Fellowship, Institut de mécanique céleste et de calcul des éphémérides (2017)
- Summer Regents Fellowship, University of California Santa Cruz (2016)

Teaching:

- Sistemas dinámicos I, Instituto tecnológico autónomo de México (ITAM) 1/2026-5/2026
  Taught undergraduate course in dynamical systems (differential equations).
- Cálculo vectorial, Instituto tecnológico autónomo de México (ITAM) 1/2026-5/2026
  Taught undergraduate course in vector calculus.
- Symplectic geometry, University of Heidelberg 10/2024-3/2025
  Taught graduate course in symplectic geometry.
- Riemannian geometry, University of Heidelberg 4/2024-7/2024
  Prepared exercises for undergraduate course in Riemannian geometry.
- Ciencia para jóvenes, Centro de Investigación en Matemáticas (CIMAT) 12/2022
  Led workshop on physics experiments and geometry for high school students.
- Electricity and magnetism, Guanajuato Departamento de Matemáticas (DEMAT) 1/2022-5/2022
  Taught undergraduate course on electricity and magnetism.
- Classical mechanics, Centro de Investigación en Matemáticas (CIMAT) 8/2021-12/2021
  Taught graduate course on classical mechanics.
- Modelling with differential geometry, Mathematical science semesters in Guanajuato (MSSG) 8/2021-12/2021
  Taught undergraduate course on curves and surfaces incorporating SageMath.
- Riemannian geometry, Centro de Investigación en Matemáticas (CIMAT) 1/2021-5/2021
  Taught graduate course on Riemannian geometry.
- Classical mechanics, Guanajuato Departamento de Matemáticas (DEMAT) 8/2020-12/2020
  Taught undergraduate course on classical mechanics.
- Directed reading program mentor, University of California Santa Cruz Spring 2018
  Supervised undergraduate reading course on celestial mechanics.
- COSMOS, California State Summer School for Mathematics & Science, Teaching Assistant Summer 2015
  Led discussion sections for high school summer math program on graph theory and number theory.
- Lecturer and Teaching Assistant University of California Santa Cruz 2012-2018
  Taught vector calculus, real analysis. Led sections in calculus, vector calculus, differential equations, linear algebra, real/complex analysis, introduction to proofs, introductory physics.

Talks:

- 11/2025: "*Projective dynamics and symmetries.*" Instituto Tecnológico Autónomo de México (ITAM)

seminar.
• 4/2024: "*Some variations on projective dynamics.*" Après-midi Astronomie et Systèmes Dynamiques (Paris Observatory)
• 8/2023: "*Scaling reductions of mechanical systems.*" Séminaire Astronomie et Systèmes Dynamiques (Paris Observatory)
• 5/2023: "*Bicycling curves and the filament hierarchy.*" Heidelberg symplectic geometry seminar
• 6/2022: "*Scaling symmetries and contact reduction.*" Geometric and variational methods in celestial mechanics (Casa matemática Oaxaca)
• 3/2022: "*Spatial bicycling geodesics are Kirchoff rods.*" Centro de Investigación en Matemáticas (CIMAT) Analysis seminar
• 12/2021: "*Métodos perturbativos para problemas curvadas de 2-cuerpos.*" Mexican HAT (Sistemas Hamiltonianos: Aplicaciones y Teoría), Instituto de Investigaciones en Matemáticas Aplicadas y Sistemas (IIMAS)
• 7/2021: "*Secular dynamics for curved two-body problems.*" Mathematical congress of the Americas (online)
• 6/2021: "*Geometry and symmetries of Kepler orbits.*" Sydney dynamics seminar (online)
• 5/2021: "*Projective geometry of planar Kepler orbits.*" Matemairacorona workshop (online)
• 12/2020: "*Una variante del teorema de Lambert.*" Mexican HAT (Sistemas Hamiltonianos: Aplicaciones y Teoría), Instituto de Investigaciones en Matemáticas Aplicadas y Sistemas (IIMAS)
• 9/2020: "*Two famous problems in celestial mechanics.*" Sociedad Matemática Mexicana
• 12/2019: "*Path geometry of the Kepler problem.*" Instituto Tecnológico Autónomo de México (ITAM) seminar, Mexico City
• 11/2019: "*Geometría diferencial y la fuerza fuerte en mecánica celeste.*" 1'a escuela nacional de geometría diferencial, Centro de Investigación en Matemáticas (CIMAT)
• 9/2019: "*Collision orbits of the 3-body problem with strong force via the Jacobi-Maupertuis principle (two talks).*" Seminario de geometría diferencial, Centro de Investigación en Matemáticas (CIMAT)
• 8/2019: "*Loose ends in a strong force 3-body problem.*"Applied Mathematics, Modeling and Computational Science (AMMCS) International Conference, Waterloo Canada
• 5/2019: "*Variations on a theme of the group $SL_2(\mathbb{R})$: point symmetries of the Kepler problem.*" Seminario de teoría de Lie, Centro de Investigación en Matemáticas (CIMAT)
• 3/2019: "*Path Geometry of the Kepler problem.*" Differential Geometry Seminar, Centro de Investigación en Matemáticas (CIMAT)
• 11/2018: "*Differential geometry techniques in the strong force 4-body problem.*" Hamiltonian systems from topology to applications through analysis, Mathematical Sciences Research Institute (MSRI)
• 8/2018: "*Studying N-body problems with the geometry of the Jacobi-Maupertuis metric.*" VI Iberoamerican meeting, Centro de Investigación en Matemáticas (CIMAT)
• 7/2018: "*Barrios del infinitud y la busqueda para syzygies.*" Seminar, Universidad Autoónoma Metropolitana-Iztapalapa
• 1/2018: "*The Jacobi-Maupertuis principle in the strong force N-body problem.*" Joint Mathematics Meetings, San Diego
• 12/2017: "*Hidden symmetries in the Kepler problem*" University of California Santa Cruz, Quantum Mechanics seminar
• 4/2017: "*Holomorphic sectional curvatures along relative equilibria.*" Séminaire Astronomie et Systèmes Dynamiques (Paris Observatory)
• 3/2017: "*On The Maupertuis Principle.*" Observatoire de Paris Groupe de travail sur le problème des N corps
• 2/2017: "*On syzygy sequences in the lunar regions.*" Observatoire de Paris Groupe de travail sur le problème des N corps
• 10/2016: "*The Principle of Least action in the Kepler problem.*" University of California Santa Cruz Undergraduate Seminar
• 9/2016: "*A Hyperbolic Shirt fits the 4-body problem.*" Mathematics Colloquium, Instituto de Investigaciones en Matemáticas Aplicadas y Sistemas (IIMAS)

• 9/2016: "*A Hyperbolic Shirt fits the 4-body problem.*" Universidade Federal do Rio de Janiero Ergodic theory seminar

• 8/2016: "*Anosovicity in the strong force N-body problem?*" Sub-Riemannian geometry and Celestial Mechanics, Richard Montgomery's 60th birthday conference, Guanajuato

• 4/2016: "*Holomorphic Sectional Curvatures for the Strong Force N-body Problem.*" Bay Area Differential Geometry Seminar

• 1/2016: "*Hanging out in Neighborhoods of Infinity.*" Universiy of California Santa Cruz Graduate Seminar

• 10/2015: "*N-body Problems and Pants.*" AMS sectional meeting Cal state Fullerton

• 5/2015: "*Fitting Pants to N-body problems.*" University of California Santa Cruz Geometry and Analysis Seminar

• 12/2014: "*Geodesics on Surfaces.*" University of California Santa Cruz Undergraduate Seminar

References:

• Richard Montgomery
University of California Santa Cruz
E-mail: rmont@ucsc.edu

• Gil Bor
Centro de investigación en matemáticas, Guanajuato
E-mail: gil@cimat.mx

• Sergei Tabachnikov
Pennsylvania State University
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• Alain Albouy
Paris observatory, Institut de mécanique céleste et de calcul des éphémérides
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