

Curriculum Vitae

Connor Jackman

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date: November 18, 2022

Employment

- Postdoc, Conacyt, CIMAT Guanajuato 12/2021-present
- Postdoc, Centro de Investigación en Matemáticas, Guanajuato 1/2019-12/2021
- Postdoc, Mathematical Sciences Research Institute 8/2018-12/2018

Education

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

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

ADVISOR: Richard Montgomery (UCSC).

- B.A. Mathematics, University Nevada Reno 2011

Articles

- *Bicycling geodesics are Kirchhoff rods.* arXiv preprint (submitted) arXiv:2208.11242 (2022). (with Gil Bor and Sergei Tabachnikov)
- *Scaling Symmetries, Contact Reduction and Poincaré's dream.* arXiv preprint (submitted) arXiv:2206.09911 (2022). (with Alessandro Bravetti and David Sloan)
- *Variations on the Tait-Kneser Theorem.* The Mathematical Intelligencer 43.3 (2021): 8-14. (with Gil Bor and Sergei Tabachnikov).
- *Revisiting Kepler: new symmetries of an old problem.* Arnold Mathematical Journal (2022): 1-33. (with Gil Bor)
- *Secular dynamics for curved two-body problems.* Journal of Dynamics and Differential Equations (2021): 1-18.
- *Loose ends in a strong force 3-body problem.* Journal of Geometry and Physics 150 (2020).
- *On the sectional curvature along central configurations,* Regular and Chaotic Dynamics, 2018, vol. 23, no. 7-8, pp. 961-973 (with Josué Meléndez).
- *Hyperbolic Shirts fit a 4-body Problem,* Journal of Geometry and Physics Volume 123, January 2018 pp 173-183 (with Josué Meléndez).
- *No Hanging Out In Neighborhoods of Infinity in the Three-body Problem,* Celestial Mechanics and Dynamical Astronomy June 2017, Volume 128, Issue 2-3, pp 183-195.
- *No Hyperbolic Pants On the 4-body Problem,* Pacific Journal of Mathematics 280-2, 2016, pp 145-154. (with Richard Montgomery).

Support

- Investigador Nivel I, Sistema Nacional de Investigadores (1/2020-12/2022)
- Chancellor's Dissertation Fellowship, UCSC (2017)
- Chateaubriand Fellowship, IMCCE Observatoire de Paris (2017)
- Summer Regents Fellowship, UCSC (2016)

Teaching

- Ciencia para jóvenes (CIMAT) 12/2022
Led workshop on topics from astronomy and geometry for high school students.
- Undergraduate advising (DEMAT) 10/2021-present
Meet weekly with undergraduate student (José Carlos Iñiguez Alvarez), to work on themes in differential geometry and mechanics, for an undergraduate thesis.
- Electricity and magnetism (DEMAT) 1/2022-5/2022
Taught undergraduate course on electricity and magnetism.
- Classical mechanics (CIMAT) 8/2021-12/2021
Taught graduate course on classical mechanics.
- Modelling with differential geometry (MSSG) 8/2021-12/2021
Taught undergraduate course on curves and surfaces incorporating SageMath.
- Riemannian geometry (CIMAT) 1/2021-5/2021
Taught graduate course on Riemannian geometry.
- Classical mechanics (DEMAT) 8/2020-12/2020
Taught undergraduate course on classical mechanics.
- Directed reading program mentor (UCSC) Spring 2018
Supervised undergraduate reading course on celestial mechanics.
- COSMOS Teaching Assistant (Santa Cruz) Summer 2015
Led discussion sections for high school summer math program on graph theory and number theory.
- Lecturer and Teaching Assistant (UCSC) 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

- 6/2022: Geometric and variational methods in celestial mechanics (Casa matemática Oaxaca), “Scaling symmetries and contact reduction”
- 3/2022: Cimat Analysis seminar, “Spatial bicycling geodesics are Kirchoff rods”
- 12/2021: Mexican HAT, “Métodos perturbativos para problemas curvadas de 2-cuerpos”
- 7/2021: Congress of the Americas, “Secular dynamics for curved two-body problems”
- 6/2021: Sydney dynamics seminar, “Geometry and symmetries of Kepler orbits”
- 5/2021: Matemairacorona, “Projective geometry of planar Kepler orbits”
- 12/2020: Mexican HAT, “Una variante del teorema de Lambert”
- 9/2020: SMM, “Two famous problems in celestial mechanics”
- 12/2019: ITAM seminar, Mexico City “Path geometry of the Kepler problem”
- 11/2019: 1ª escuela nacional de geometría diferencial, CIMAT Guanajuato “Geometría diferencial y la fuerza fuerte en mecánica celeste”
- 9/2019: Seminario de geometría diferencial, CIMAT Guanajuato “Collision orbits of the 3-body problem with strong force via the Jacobi-Maupertuis principle (two talks)”
- 8/2019: AMMCS International Conference, Waterloo Canada “Loose ends in a strong force 3-body problem”
- 5/2019: Seminario de teoría de Lie, CIMAT Guanajuato “Variations on a theme of the group $SL_2(\mathbb{R})$: point symmetries of the Kepler problem”
- 3/2019: Differential Geometry Seminar, CIMAT Guanajuato “Path Geometry of the Kepler problem”
- 11/2018: MSRI, Hamiltonian systems from topology to applications through analysis, “Differential geometry techniques in the strong force 4-body problem”
- 8/2018: VI Iberoamerican meeting, CIMAT, “Studying N-body problems with the geometry of the

Jacobi-Maupertuis metric”

- 7/2018: UAM-Iztapalapa Seminar, ”Barrios del infinitud y la busqueda para syzygies”
- 1/2018: Joint Mathematics Meetings, San Diego, “The Jacobi-Maupertuis principle in the strong force N -body problem”
- 12/2017: UCSC Quantum Mechanics seminar, “Hidden symmetries in the Kepler problem”
- 4/2017: Observatoire de Paris Séminaire ASD, “Holomorphic sectional curvatures along relative equilibria”
- 3/2017: Observatoire de Paris Groupe de travail sur le problème des N corps, “On The Maupertuis Principle”
- 2/2017: Observatoire de Paris Groupe de travail sur le problème des N corps, “On syzygy sequences in the lunar regions”
- 10/2016: UCSC Undergraduate Seminar, “The Principle of Least action in the Kepler problem”.
- 9/2016: IIMAS Mathematics Colloquium Mexico City, “A Hyperbolic Shirt fits the 4-body problem”.
- 9/2016: Universidade Federal do Rio de Janiero Ergodic theory seminar, “A Hyperbolic Shirt fits the 4-body problem”.
- 8/2016: Richard Montgomery’s 60th in Guanajuato Mexico, “Anosovicity in the strong force N -body problem?”
- 4/2016: Bay Area Differential Geometry Seminar, “Holomorphic Sectional Curvatures for the Strong Force N -body Problem”.
- 1/2016: UCSC Graduate Seminar, “Hanging out in Neighborhoods of Infinity”.
- 10/2015: AMS sectional meeting Cal state Fullerton, “ N -body Problems and Pants”.
- 5/2015: UCSC Geometry and Analysis Seminar, “Fitting Pants to N -body problems”.
- 12/2014: UCSC Undergraduate Seminar, “Geodesics on Surfaces”.

References

- Richard Montgomery
University of California Santa Cruz
E-mail: rmont@ucsc.edu
- Gil Bor
Centro de investigación en matemáticas (CIMAT)
E-mail: gil@cimat.mx
- Sergei Tabachnikov
Pennsylvania State University
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- Alain Albouy
Paris observatory, IMCCE
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