

Asier López-Gordón

PREDOCTORAL RESEARCHER

Instituto de Ciencias Matemáticas (CSIC-UAM-UC3M-UCM)
Calle Nicolás Cabrera, 13-15, Campus Cantoblanco, UAM, 28049 Madrid, Spain

✉ asier.lopez@icmat.es | 🌐 alopezgordon.xyz | ☎ 0000-0002-9620-9647

Education

Universidad Autónoma de Madrid

Madrid, Spain

PHD MATHEMATICS

2021 -

- PhD thesis: The geometry of dissipation
- Advisor: Manuel de León

Universidad Autónoma de Madrid

Madrid, Spain

MSc THEORETICAL PHYSICS

2020 - 2021

- MSc thesis: The geometry of Rayleigh dissipation (arXiv:[2107.03780](https://arxiv.org/abs/2107.03780))
- Advisor: Manuel de León

Universidad Complutense de Madrid

Madrid, Spain

BSc PHYSICS

2016 - 2020

- BSc thesis: Integrability, chaos and entanglement in quantum systems
- Advisors: Federico Finkel and Artemio González-López

Professional Experience

2021- **Predoctoral researcher**, Instituto de Ciencias Matemáticas (ICMAT-CSIC), Madrid, Spain

2020-2021 **“JAE Intro” research grantee**, Instituto de Ciencias Matemáticas (ICMAT-CSIC), Madrid, Spain

Publications

PUBLISHED

M. de León, M. Lainz, A. L.-G., “Discrete Hamilton-Jacobi theory for systems with external forces”, *J. Phys. A: Math. Theor.* (2022), doi: [10.1088/1751-8121/ac6240](https://doi.org/10.1088/1751-8121/ac6240),

M. de León, M. Lainz, A. L.-G., “Geometric Hamilton-Jacobi theory for systems with external forces”, *J. Math. Phys.* **63**, 022901 (2022), doi:[10.1063/5.0073214](https://doi.org/10.1063/5.0073214)

M. de León, M. Lainz, A. L.-G., “Symmetries, constants of the motion, and reduction of mechanical systems with external forces”, *J. Math. Phys.* **62**, 042901 (2021), doi:[10.1063/5.0045073](https://doi.org/10.1063/5.0045073)

IN REVIEW

M. E. E. Irazú, A. L.-G., L. J. Colombo, and M. de León, “Hybrid Routhian reduction for simple hybrid forced Lagrangian systems” (2022), [arXiv:2202.08588](https://arxiv.org/abs/2202.08588) [math.DS]

L. J. Colombo, M. de León, M. E. Eyrea Irazú, A. L.-G., “Symplectic and Cosymplectic Reduction for simple hybrid forced mechanical systems with symmetries” (2021), [arXiv:2112.02573](https://arxiv.org/abs/2112.02573) [eess.SY]

Awards, Fellowships, & Grants

2021 **“FPI” predoctoral contract**, Ministerio de Ciencia e Innovación

“JAE Intro” Grant extension, Instituto de Ciencias Matemáticas (ICMAT)

3 000 €

2020 **“JAE Intro” Grant**, Consejo Superior de Investigaciones Científicas (CSIC)

3 000 €

2019 **“Beca de Colaboración en Departamentos”**, Universidad Complutense de Madrid

2 000 €

Contributed Talks and Posters

- April 1, 2022. **Geometry, Mechanics and Control Seminar.** *Reduction, Hamilton-Jacobi theory and discretization of mechanical systems with external forces.* Instituto de Ciencias Matemáticas, Madrid, Spain (online).
- March 7-11, 2022. **VII Iberoamerican Meeting on Geometry, Mechanics and Control.** *Forced Hamiltonian and Lagrangian systems. Symmetries, reduction and Hamilton-Jacobi theory.* Departamento de Matemática, Universidad Nacional del Sur, Bahía Blanca, Argentina (online).
- January 17-21, 2022. **Congreso Bienal de la Real Sociedad Matemática Española** (Biennial Congress of the Royal Spanish Mathematical Society). *Systems with external forces. Symmetries, reduction and Hamilton-Jacobi theory.* Universidad de Castilla – La Mancha, Ciudad Real, Spain (poster).
- December 1-3, 2021. **Young Researchers Workshop in Geometry, Mechanics and Control.** *Symmetries, reduction, Hamilton-Jacobi theory and discretization for systems with external forces.* Centre de Recerca Matemàtica, Campus de Bellaterra, Barcelona, Spain (poster).
- September 8, 2021. **XXIX International Fall Workshop in Geometry and Physics.** *Mechanical systems with external forces. Symmetries, reduction and Hamilton-Jacobi theory.* Centro de Matemática e Aplicações, Universidade da Beira Interior, Covilhã, Portugal (online).

Assistance to events

WORKSHOPS

- May 23-26, 2022. **Geometric Aspects of the Swampland.** Centro de Física Teórica y Matemáticas, Madrid, Spain.
- March 7-11, 2022. **VII Iberoamerican Meeting on Geometry, Mechanics and Control.** Departamento de Matemática, Universidad Nacional del Sur, Bahía Blanca, Argentina (online).
- January 17-21, 2022. **Congreso Bienal de la Real Sociedad Matemática Española** (Biennial Congress of the Royal Spanish Mathematical Society). Universidad de Castilla – La Mancha, Ciudad Real, Spain.
- December 1-3, 2021. **Young Researchers Workshop in Geometry, Mechanics and Control.** Centre de Recerca Matemàtica, Campus de Bellaterra, Barcelona, Spain.
- September 7-10, 2021. **XXIX International Fall Workshop in Geometry and Physics.** Centro de Matemática e Aplicações, Universidade da Beira Interior, Covilhã, Portugal (online).
- July 26-30, 2021. **Symposium on New Developments in Momentum Polytope Theory.** Instituto de Ciencias Matemáticas (ICMAT), Madrid, Spain (online).
- February 18-19 2021. **XXII Winter Meeting on Geometry, Mechanics and Control.** Universidade de Santiago de Compostela, Santiago de Compostela, Spain (online).
- December 1-3, 2020. **BYMAT Conference-Bringing Young Mathematicians Together.** Universitat de València and Universitat Politècnica de València, Valencia, Spain (online).

SCHOOLS

- August 2-5, 2021. **Summer School on New Developments in Momentum Polytope Theory.** Instituto de Ciencias Matemáticas (ICMAT), Madrid, Spain (online).
- June 21-July 9, 2021. **JAЕ School of Mathematics.** Instituto de Ciencias Matemáticas (ICMAT), Madrid, Spain.
- January 25-February 5, 2021. **Master School on Geometry, Analysis and Applications.** Universidad de Cantabria, Santander, Spain (online).
- September 7-9, 2020. **JAЕ School of Mathematics.** Instituto de Ciencias Matemáticas (ICMAT), Madrid, Spain (online).
- July 1-5 2019. **I International School on Particle Physics and Cosmology.** Universidad Internacional Menéndez Pelayo, Santander, Spain.

SEMINARS

- Weekly. **Geometric Mechanics and Control Seminar.** Instituto de Ciencias Matemáticas (ICMAT), Madrid, Spain (online).
- Biweekly. **Geometry, Dynamics and Mechanics Seminar.** Università degli Studi di Padova, Padua, Italy (online).

OTHERS

June 1, 2022. **Conferencia Final Net4impact. Impacto Social De La Investigación Científica.** Instituto de Ciencias Matemáticas, Madrid, Spain.

Teaching Experience

Winter 2022-23	Matemáticas (Mathematics) , Teaching Assistant, Grado en Ciencia y Tecnología de los Alimentos, Doble Grado en Nutrición Humana y Dietética y CTA (Degree in Food Science and Technology, Double Degree in Human Nutrition and Dietetics and FST)	<i>Universidad Autónoma de Madrid</i>
Winter 2022-2023	Matemáticas (Mathematics) , Teaching Assistant, Grado en Bioquímica (Degree in Biochemistry)	<i>Universidad Autónoma de Madrid</i>

Outreach & Professional Development

PEER REVIEW

Journal of Geometric Mechanics

Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas

61st IEEE Conference on Decision and Control

PROFESSIONAL MEMBERSHIPS

Real Sociedad Matemática Española (Royal Spanish Mathematical Society)

Real Sociedad Española de Física (Spanish Royal Physics Society)

Languages

English. Advanced, C1 in the CEFR, 7.5 band score in IELTS Academic

Spanish. Mother tongue

Computer skills

Advanced. \LaTeX , GNU/Linux, Mathematica, Python

Basic. bash/shell, git, gnuplot, html, Julia, matlab, nginx, OriginLab, SciDAVis