Santiago José BENAVIDES
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Gibbet Hill Road, Coventry, CV7 4AL, UK
Dated: February 17, 2022

EMPLOYMENT AND RESEARCH EXPERIENCE

University of Warwick, Coventry, UK   **Feb. 2022-**
Research Fellow in the Mathematics Department

EDUCATION

Massachusetts Institute of Technology (MIT), Cambridge, USA   **2016-2022**
PhD candidate, Department of Earth, Atmospheric and Planetary Sciences (EAPS)   GPA: 4.9/5
Focus: Nonlinear Dynamics in Geosciences
Advisors: Glenn R. Flierl & J. Taylor Perron

École Normale Supérieure (ENS) rue d'Ulm, Paris, France   **2015-2016**
Masters ENS-ICFP in Macroscopic Physics and Complexity   mention *Très Bien*
Advisor: Alexandros Alexakis

The University of Texas at Austin   **2010-2015**
Bachelor of Science in Physics (Option: Honors Physics)   GPA: 3.9628/4
Bachelor of Science in Mathematics (Option: Honors Mathematics)
        Dean's Scholars Honors Program
            Graduation Distinction: Dean's Honored Graduate (Top 1%) and Highest Honors (Top 4%)

PUBLICATIONS

Benavides, S. J., & Perron, J. T., "Intermittency properties of a novel lattice model of bed load sediment transport," (*In Preparation*).

Benavides, S. J., Burns, K. J., Gallet, B., & Flierl, G. R., "Effective drag in rotating, poorly conducting plasma turbulence," *(In preparation for submission to the Astrophysical Journal)*.

Benavides, S. J., Deal, E., Venditti, J. G., Zhang, Q., Kamrin, K., & Perron, J. T., "How fast or how many? Sources of sediment transport intermittency," (*In preparation for submission to Geology*).

Deal, E., Venditti, J. G., **Benavides, S. J.,** Bradley, R., Zhang, Q., Kamrin, K., & Perron, J. T., "Grain shape effects in bed load sediment transport," (*Under Review at Nature Geoscience*).
https://doi.org/10.31223/X55033

Zhang, Q., Deal, E., Perron, J. T., Venditti, J. G., **Benavides, S. J**., Rushlow, M., & Kamrin, K., "Fluid-driven transport of round sediment particles: from discrete simulations to continuum modeling," (*Submitted to JGR: Earth Surface)*.

Benavides, S. J., Burns, K. J., Gallet, B., Cho, J. Y-K. & Flierl, G. R., "Inverse cascade suppression and shear layer formation in MHD turbulence subject to a guide field and misaligned rotation," *Journal of Fluid Mechanics,* Volume 935, A1, (2022).
https://www.doi.org/10.1017/jfm.2021.968

Benavides, S. J., Deal, E., Rushlow, M., Venditti, J. G., Zhang, Q., Kamrin, K., & Perron, J. T., "The impact of intermittency on bed load sediment transport," *Geophysical Research Letters,* 49, e2021GL096088 (2022).
https://doi.org/10.1029/2021GL096088

Alexakis, A., Pétrélis, F., **Benavides, S. J.**, & Seshasayanan, K., "Symmetry breaking in a turbulent environment," *Phys. Rev. Fluids* **6**, 024605 (2021).
https://doi.org/10.1103/PhysRevFluids.6.024605

Benavides, S. J., & Flierl, G. R., "Two-dimensional partially ionized magnetohydrodynamic turbulence," *Journal of Fluid Mechanics*. Volume 900, A28, (2020).
https://doi.org/10.1017/jfm.2020.500

Benavides, S. J., & Alexakis, A., "Critical transitions in thin layer turbulence," *Journal of Fluid Mechanics,* Volume 822, pg. 364-385 (2017).
https://doi.org/10.1017/jfm.2017.293
  Mentioned in feature article: Ecke, R. E. "From 2D to 3D in Fluid Turbulence: Unexpected Critical Transitions." *Journal of Fluid Mechanics,* Volume 828, pg. 1-4 (2017).
  https://doi.org/10.1017/jfm.2017.507

Seshasayanan, K., **Benavides, S. J**., & Alexakis, A., "On the edge of an inverse cascade," *Phys. Rev. E.* Volume 90, 051003(R) (2014).
http://dx.doi.org/10.1103/PhysRevE.90.051003

SCIENTIFIC EXPERIENCE
Participant in summer school at the Center for Computational Astrophysics
The Flatiron Institute (Simons Foundation), New York, New York
Theme: "Multiscale Modeling of Astrophysical and Space Plasmas"   **Summer 2019**

Participant and speaker at workshop of Les Houches School of Physics, France
Theme: "New Challenges in Turbulence Research V"   **April 2019**

Guest Student at Geophysical Fluid Dynamics Summer School
WHOI, Woods Hole, Massachusetts
Theme: Atmosphere, Ocean, and Climate Fluid Dynamics   **Summer 2014**

HONORS AND AWARDS
Future Investigators in NASA Earth   **2020-2021**
and Space Science and Technology (FINESST) fellowship ($45,000)

MIT
Jule Charney Prize ($12,000)   **2016-2019**

Robert R Shrock Graduate Fellowship ($78,350)   **2016**

ENS
ENS-ICFP Scholarship ($10,000)   **2015-2016**

TEACHING EXPERIENCE
Teaching Assistant at Massachusetts Institute of Technology
12.810: "Dynamics of the Atmosphere" (Graduate)   **Spring 2021**
Overall rating in subject evaluation: 6.6/7

Mentor for MIT's Undergraduate Research Opportunities Program
Directly mentoring two undergraduates on original research projects   **Summer 2020**

Teaching Assistant at Massachusetts Institute of Technology
12.820: "Turbulence in the Atmosphere and Ocean" (Graduate Course)   **Spring 2020**

Teaching Assistant at Massachusetts Institute of Technology
12.800: "Fluid Dynamics of the Atmosphere and Ocean" (Graduate)   **Fall 2019**
Overall rating in subject evaluation: 6.7/7

Undergraduate Teaching Assistant at the University of Texas at Austin
P S 303: "Introductory Physical Science I: Mechanics and Heat."   **Fall 2013**

SERVICES AND OUTREACH
Participant in the Application Mentorship Program (EAPS, MIT)   **Fall 2020-Present**
Mentoring future applicants, e.g. with personal statements.
https://sites.google.com/view/eaps-student-advisory-council/application-assistance

Member of Graduate Student Advisory Committee (GSAG)
to the faculty search committee   **Spring 2020**

Member of the Diversity Council (EAPS, MIT)
Department-wide committee, including faculty and staff   **Fall 2019-Present**

Creator and runner of Student Seminar (EAPS, MIT)
Department wide, weekly seminar for students   **Fall 2018-Spring 2020**
    Seminars given:
    How can we study extreme events efficiently?   **Fall 2020**
    Epidemic processes in complex networks   **Spring 2020**
    Atmospheric Predictability   **Fall 2019**
    Knots and their surprising connections to fluids and turbulence   **Spring 2019**
    Collective and critical phenomena in living systems   **Fall 2018**

ADDITIONAL SKILLS
Programming: Python, Fortran, git. Languages: Spanish (fluent), French (fluent, but limited), Russian (limited)