# ALEX KINSELLA

Ph.D. Candidate in Physics
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## Education

2015-21 **UC Santa Barbara**
Ph.D. Physics, June 2021 (expected)
*Advisor:* David R. Morrison
*Dissertation Title:* M-Theory/Heterotic Duality in the Half-$G_2$ Limit
M.A. Physics, May 2018

2011-15 **Stanford University**
B.S. Mathematics and Physics (with physics departmental honors and distinction)
*Honors Thesis Advisor:* Sean Hartnoll
*Honors Thesis Title:* No Negative Modes About the Axionic Wormhole Instanton

## Publications

*Author ordering in high energy theoretical physics is alphabetical by last name*

In prep. B. Acharya, A. Kinsella, and D. Morrison. "Heterotic Duals of M-Theory on Joyce Orbifolds." In preparation for *Journal of High Energy Physics*.

In prep. B. Acharya, A. Kinsella, and E. Eik Svanes. "Local Heterotic Reductions." In preparation for *Journal of High Energy Physics.*

2018 S. B. Giddings and A. Kinsella. "Gauge-invariant observables, gravitational dressings, and holography in AdS." *Journal of High Energy Physics.* doi.org/10.1007/JHEP11(2018)074

## Grants and Fellowships

2020-21 UC Santa Barbara National Science Foundation Extension Fellowship ($24,000)

2015-20 National Science Foundation Graduate Research Fellowship ($102,000)

2013 Stanford Vice Provost for Undergraduate Education Major Grant ($6,000)

2010 Manson Scholar, The Bay School of San Francisco
*(Awarded by the faculty and administration for intellectual merit, commitment to the school's values, and leadership in the school community. Included a full four-year college scholarship.)*

## Selected Presentations

2019 **Heterotic Duals of M-Theory on Joyce Orbifolds**. Talk at the Simons Collaboration Meeting on *Physics and Special Holonomy*, Kavli Institute for Theoretical Physics, April 2019

2017 **Diffeomorphism-Invariant Bulk Observables in AdS**. Talk at Pacific Coast Gravity Meeting, UCSB, March 2017

2013 **Fully Coupled Models of (Idealized) Buildings and Seismic Waves from Earthquakes**. Poster at 2013 Southern California Earthquake Center Annual Meeting, Palm Springs, CA

2012 **Rapid Lateral Variation of Seismic Anisotropy in the Salton Trough, Southern California**. Poster at 2012 American Geophysical Union Fall Meeting, San Francisco, CA

2016-20 UCSB Internal Seminars
*Physics of the Ocean and Climate*, May 2020
*Seiberg-Witten Theory and 4-Manifolds*, February 2019
*The Supersymmetric Proof of the Index Theorem*, May 2018
*The Category of Topological B-Branes,* February 2018
*BRST, Gauge Theory, and Cohomological Field Theory*, January 2018
*The Kodaira Embedding Theorem*, November 2017
*Mirror Symmetry for $G_2$ Manifolds from Dual Tops,* November 2017
*D-Branes and Matrix Theory*, October 2017
*The A- and B-Model Topological Field Theories,* May 2017
*The Virasoro Algebra*, January 2017
*Lattice Gauge Theories*, October 2016

## Teaching and Mentorship Experience

2019-20 **Teaching assistant**, UCSB Physics Department
Physics 219: Statistical Mechanics (Winter 2020)
Physics 210A: Electricity and Magnetism (Winter 2020)
Physics 101: Complex Analysis (Spring 2019)

2014-15 **Tutor**, Stanford University Mathematics Organization.
Linear algebra, multivariable calculus, and differential equations

2013 Stanford Society of Physics Students Women in Physics Program
*Events for freshman women interested in physics and physics demonstrations for local Girl Scouts.*

## Service

2017-18 Co-Organizer of the UCSB Mathematical Physics Seminar

## Skills

Proficiency in Matlab, Mathematica, Python. Experience with Java.

Extensive graduate-level coursework in physics, mathematics, and oceanography
*Relevant graduate-level coursework for oceanography: physical oceanography, chemical oceanography, geological oceanography, biogeochemistry, climate modeling, fluid mechanics, computational fluid dynamics, numerical methods, seismology*

**Memberships**

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| 2017-21 | Simons Collaboration for Special Holonomy in Geometry, Analysis, and Physics |
| | American Physical Society |
| | American Geophysical Union |