Stanford

Jason Hogan

Associate Professor of Physics

CONTACT INFORMATION

- **Administrative Contact**

  Zhenhua Wang

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Bio

ACADEMIC APPOINTMENTS

- Associate Professor, Physics

LINKS

- Hogan group: https://hoganlab.stanford.edu/

Teaching

COURSES

2025-26

- Electrodynamics: PHYSICS 121 (Spr)
- Electromagnetism: PHYSICS 120 (Win)

2024-25

- Electrodynamics: PHYSICS 121 (Spr)
- Electromagnetism: PHYSICS 120 (Win)

2023-24

- Intermediate Electricity and Magnetism I: PHYSICS 120 (Win)
- Intermediate Electricity and Magnetism II: PHYSICS 121 (Spr)

2022-23

- Intermediate Electricity and Magnetism I: PHYSICS 120 (Win)
- Intermediate Electricity and Magnetism II: PHYSICS 121 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Chiara Brandenstein, Sanha Cheong, Jason Corbin, Joseph Curti, Minjeong Kim, Michelle Wu, Ocean Zhou

Postdoctoral Faculty Sponsor

Yijun Jiang, Yi Lu, Michael Van de Graaff

Doctoral Dissertation Advisor (AC)

Mahiro Abe, Rachel Barcklay, Nicholas Entin, Healey Kogan, Aaron Leland, Indra Periwal, Hunter Swan, Dhruv Tandon

Doctoral (Program)

Indra Periwal

Publications

PUBLICATIONS

- **Matter-wave Atomic Gradiometer Interferometric Sensor (MAGIS-100)** *QUANTUM SCIENCE AND TECHNOLOGY*
  Abe, M., Adamson, P., Borcean, M., Bortoletto, D., Bridges, K., Carman, S. P., Chattopadhyay, S., Coleman, J., Curfman, N. M., DeRose, K., Deshpande, T., Dimopoulos, S., Foot, et al
  2021; 6 (4)
- **AEDGE: Atomic experiment for dark matter and gravity exploration in space** *EXPERIMENTAL ASTRONOMY*
  Bertoldi, A., Bongs, K., Bouyer, P., Buchmueller, O., Canuel, B., Caramete, L., Chiofalo, M., Coleman, J., De Roeck, A., Ellis, J., Graham, P. W., Haehnelt, M. G., Hees, et al
  2021
- **AEDGE: Atomic Experiment for Dark Matter and Gravity Exploration in Space** *EPJ QUANTUM TECHNOLOGY*
  El-Neaj, Y., Alpigiani, C., Amairi-Pyka, S., Araujo, H., Balaz, A., Bassi, A., Bathe-Peters, L., Battelier, B., Belic, A., Bentine, E., Bernabeu, J., Bertoldi, A., Bingham, et al
  2020; 7 (1)
- **Large Momentum Transfer Clock Atom Interferometry on the 689 nm Intercombination Line of Strontium** *PHYSICAL REVIEW LETTERS*
  Rudolph, J., Wilkason, T., Nantel, M., Swan, H., Holland, C. M., Jiang, Y., Garber, B. E., Carman, S. P., Hogan, J. M.
  2020; 124 (8): 083604
- **SAGE: A proposal for a space atomic gravity explorer** *EUROPEAN PHYSICAL JOURNAL D*
  Tino, G. M., Bassi, A., Bianco, G., Bongs, K., Bouyer, P., Cacciapuoti, L., Capozziello, S., Chen, X., Chiofalo, M. L., Derevianko, A., Ertmer, W., Gaaloul, N., Gill, et al
  2019; 73 (11)
- **Effective Inertial Frame in an Atom Interferometric Test of the Equivalence Principle** *PHYSICAL REVIEW LETTERS*
  Overstreet, C., Asenbaum, P., Kovachy, T., Notermans, R., Hogan, J. M., Kasevich, M. A.
  2018; 120 (18): 183604
- **Search for light scalar dark matter with atomic gravitational wave detectors** *PHYSICAL REVIEW D*
  Arvanitaki, A., Graham, P. W., Hogan, J. M., Rajendran, S., Van Tilburg, K.
  2018; 97 (7)
- **Phase Shift in an Atom Interferometer due to Spacetime Curvature across its Wave Function** *PHYSICAL REVIEW LETTERS*
  Asenbaum, P., Overstreet, C., Kovachy, T., Brown, D. D., Hogan, J. M., Kasevich, M. A.
  2017; 118 (18)
- **Resonant mode for gravitational wave detectors based on atom interferometry** *PHYSICAL REVIEW D*
  Graham, P. W., Hogan, J. M., Kasevich, M. A., Rajendran, S.
  2016; 94 (10)
- **Atom-interferometric gravitational-wave detection using heterodyne laser links** *PHYSICAL REVIEW A*
  Hogan, J. M., Kasevich, M. A.
  2016; 94 (3)
- **Kovachy et al. reply.** *Nature*
  Kovachy, T., Asenbaum, P., Overstreet, C., Donnelly, C. A., Dickerson, S. M., Sugarbaker, A., Hogan, J. M., Stamper-Kurn, M. A.
  2016; 537 (7618): E2-3

- **Quantum superposition at the half-metre scale** *NATURE*
  Kovachy, T., Asenbaum, P., Overstreet, C., Donnelly, C. A., Dickerson, S. M., Sugarbaker, A., Hogan, J. M., Kasevich, M. A.
  2015; 528 (7583): 530-?
- **Matter wave lensing to picokelvin temperatures.** *Physical review letters*
  Kovachy, T., Hogan, J. M., Sugarbaker, A., Dickerson, S. M., Donnelly, C. A., Overstreet, C., Kasevich, M. A.
  2015; 114 (14): 143004-?
- **Enhanced Atom Interferometer Readout through the Application of Phase Shear** *PHYSICAL REVIEW LETTERS*
  Sugarbaker, A., Dickerson, S. M., Hogan, J. M., Johnson, D. M., Kasevich, M. A.
  2013; 111 (11)
- **Multiaxis inertial sensing with long-time point source atom interferometry.** *Physical review letters*
  Dickerson, S. M., Hogan, J. M., Sugarbaker, A., Johnson, D. M., Kasevich, M. A.
  2013; 111 (8): 083001-?
- **New method for gravitational wave detection with atomic sensors.** *Physical review letters*
  Graham, P. W., Hogan, J. M., Kasevich, M. A., Rajendran, S.
  2013; 110 (17): 171102-?
- **Generation of 43 W of quasi-continuous 780 nm laser light via high-efficiency, single-pass frequency doubling in periodically poled lithium niobate crystals** *OPTICS LETTERS*
  Chiow, S., Kovachy, T., Hogan, J. M., Kasevich, M. A.
  2012; 37 (18): 3861-3863
- **A high-performance magnetic shield with large length-to-diameter ratio** *REVIEW OF SCIENTIFIC INSTRUMENTS*
  Dickerson, S., Hogan, J. M., Johnson, D. M., Kovachy, T., Sugarbaker, A., Chiow, S., Kasevich, M. A.
  2012; 83 (6)
- **Reply to "Comment on 'Atomic gravitational wave interferometric sensor'"** *PHYSICAL REVIEW D*
  Dimopoulos, S., Graham, P. W., Hogan, J. M., Kasevich, M. A., Rajendran, S.
  2011; 84 (2)
- **An atomic gravitational wave interferometric sensor in low earth orbit (AGIS-LEO)** *GENERAL RELATIVITY AND GRAVITATION*
  Hogan, J. M., Johnson, D. M., Dickerson, S., Kovachy, T., Sugarbaker, A., Chiow, S., Graham, P. W., Kasevich, M. A., Saif, B., Rajendran, S., Bouyer, P., Seery, B. D., Feinberg, et al
  2011; 43 (7): 1953-2009
- **Precision angle sensor using an optical lever inside a Sagnac interferometer** *OPTICS LETTERS*
  Hogan, J. M., Hammer, J., Chiow, S., Dickerson, S., Johnson, D. M., Kovachy, T., Sugarbaker, A., Kasevich, M. A.
  2011; 36 (9): 1698-1700
- **Picosecond Optical Switching Using RF Nonlinear Transmission Lines** *JOURNAL OF LIGHTWAVE TECHNOLOGY*
  Johnson, D. M., Hogan, J. M., Chiow, S., Kasevich, M. A.
  2011; 29 (5): 666-669
- **Optical lattices as waveguides and beam splitters for atom interferometry: An analytical treatment and proposal of applications** *PHYSICAL REVIEW A*
  Kovachy, T., Hogan, J. M., Johnson, D. M., Kasevich, M. A.
  2010; 82 (1)
- **Broadband optical serrodyne frequency shifting** *OPTICS LETTERS*
  Johnson, D. M., Hogan, J. M., Chiow, S., Kasevich, M. A.
  2010; 35 (5): 745-747
- **Gravitational wave detection with atom interferometry** *PHYSICS LETTERS B*
  Dimopoulos, S., Graham, P. W., Hogan, J. M., Kasevich, M. A., Rajendran, S.
  2009; 678 (1): 37-40
- **Atomic gravitational wave interferometric sensor** *PHYSICAL REVIEW D*

Dimopoulos, S., Graham, P. W., Hogan, J. M., Kasevich, M. A., Rajendran, S.
2008; 78 (12)

- **General relativistic effects in atom interferometry** *PHYSICAL REVIEW D*
  Dimopoulos, S., Graham, P. W., Hogan, J. M., Kasevich, M. A.
  2008; 78 (4)
- **How to test atom and neutron neutrality with atom interferometry** *PHYSICAL REVIEW LETTERS*
  Arvanitaki, A., Dimopoulos, S., Geraci, A. A., Hogan, J., Kasevich, M.
  2008; 100 (12)
- **Testing general relativity with atom interferometry** *PHYSICAL REVIEW LETTERS*
  Dimopoulos, S., Graham, P. W., Hogan, J. M., Kasevich, M. A.
  2007; 98 (11)