

Samuel B. Kachuck

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I am seeking post-doctoral and faculty positions researching the uncertainties in geophysical models related of local sea level changes.

Education

Cornell University Ph.D. in Geophysics	Sep 2011 – May 2018 (expected)
Cornell University M.S. in Physics	Sep 2011 – Aug 2014
Cambridge University, St. Edmund's College M.A.St., in Applied Mathematics and Theoretical Physics <i>with Merit</i>	Oct 2010 – May 2011
Wesleyan University B.A. in Physics and Mathematical Economics <i>with High Honors in Physics</i>	Sep 2006 – June 2010

Research Experience

Graduate Research Fellow Cornell University <i>Advisor:</i> Prof. Lawrence M. Cathles, III <i>Area:</i> Glacial Isostatic Modeling and Analysis ○ Computational study of the physics and errors in models of glacial isostatic adjustment.	May 2012 – Present
Graduate Research Assistant Cornell University <i>Advisor:</i> Prof. Itai Cohen <i>Area:</i> Insect Flight Stability and Control ○ Experimental study of the fluid dynamics and control mechanisms employed by <i>Drosophila</i> to stabilize their flight against perturbations.	Sep 2011 – May 2012
Research Assistant GK Batchelor Fluids Laboratory <i>Advisor:</i> Dr. Stuart B. Dalziel <i>Area:</i> Buoyancy in Permeable Media ○ Experimental study of the various fluid dynamical regimes present when a buoyant plume flows past a permeable medium.	Oct 2010 – May 2011
Undergraduate Research Assistant Wesleyan University <i>Advisor:</i> Prof. Greg A. Voth <i>Area:</i> Granular Gas Dynamics ○ Experimental and computational study of the dynamics of 2D granular gases in gravity, both in steady state (when energy is continuously added) and in decay (when it is not).	Aug 2008 – June 2010

Publications

- [1] **Kachuck, Samuel B.**, "Geometric perspective on fitting glacial isostatic adjustment," in prep.
- [2] R. Riva, G. Spada, . . ., **Kachuck, Samuel B.**, and . . ., "Benchmarking the sea level equation," in prep.
- [3] W. J. Durkin, **Kachuck, Samuel B.**, and M. E. Pritchard, "Sensitivity of southeast alaskan elastic uplift rates to uncertainty in earth structure and decadal ice thinning rates," in prep.
- [4] **Kachuck, Samuel B.**, "Nondimensionalized relaxation method for efficient computation of time-domain viscoelastic love numbers," in prep.
- [5] **Kachuck, Samuel B.** and L. M. Cathles, "Constraining the geometry and volume of the barents sea ice sheet," *Journal of Quaternary Science*, in review.
- [6] **Kachuck, Samuel B.** and G. A. Voth, "Simulations of granular gravitational collapse," *Physical Review E*, vol. 88, no. 6, p. 062202, Dec. 2013, ISSN: 1539-3755. DOI: 10.1103/PhysRevE.88.062202. [Online]. Available: <http://link.aps.org/doi/10.1103/PhysRevE.88.062202>.
- [7] J. A. Perez, **Kachuck, Samuel B.**, and G. A. Voth, "Visualization of collisional substructure in granular shock waves," *Physical Review E*, vol. 78, no. 4, pp. 1–6, Oct. 2008, ISSN: 1539-3755. DOI: 10.1103/PhysRevE.78.041309. [Online]. Available: <http://link.aps.org/doi/10.1103/PhysRevE.78.041309>.

Teaching Experience

- Private Tutor (PHYS 2207, 2208, 1112, 2213, 2216; MAE 3780; CEE 3310), S2012 – present
- Analytical Mechanics (CU PHYS 3318), GTA S2017
- Physics II: Electromagnetism (CU PHYS 2213), GTA F2011, S2012, Su2012
- Physics I: Mechanics and Heat (CU PHYS 1112), GTA F2012
- Quantum Mechanics I (W PHYS 214), UTA S2010
- Mathematical Economics (W ECON 380), UTA F2009
- General Physics II (W PHYS 116), UTA S2009
- General Physics I (W PHYS 113), UTA F2008

Skills

Languages: Python, C/C++, FORTRAN, APL, \LaTeX , Matlab

Honors & Awards

- Douglas A Fitchen Scholar 2017
- AGU Outstanding Student Paper Award 2016
- NSF GRFP Honorable Mention 2012
- Phi Beta Kappa 2010
- Graham Prize 2010
- Karl van Dyke Prize 2010
- Plukas Teaching Apprentice Award 2010
- White Prize 2010
- Dean's List, Wesleyan University 2006 – 2010
- Squire Fund Fellow 2007
- Chadbourne Prize 2007

Service

- Letters to a Pre-Scientist 2016-
- Local Geology Walk 2016-
- Graduate Teaching Assistant Review 2013
- Graduate Teaching Assistant Training 2012, 2013
- Alumni Day Physics Demonstrations 2012
- Retrospective Degree Day Fluids Demonstrations 2011

All Publications

Google Scholar ID: nuMklOMAAAAJ

Journal Articles

- [J1] **Kachuck, Samuel B.**, "Geometric perspective on fitting glacial isostatic adjustment," in prep.
- [J2] R. Riva, G. Spada, . . ., **Kachuck, Samuel B.**, and . . ., "Benchmarking the sea level equation," in prep.
- [J3] W. J. Durkin, **Kachuck, Samuel B.**, and M. E. Pritchard, "Sensitivity of southeast alaskan elastic uplift rates to uncertainty in earth structure and decadal ice thinning rates," in prep.
- [J4] **Kachuck, Samuel B.**, "Nondimensionalized relaxation method for efficient computation of time-domain viscoelastic love numbers," in prep.
- [J5] **Kachuck, Samuel B.** and L. M. Cathles, "Constraining the geometry and volume of the barents sea ice sheet," *Journal of Quaternary Science*, in review.
- [J6] **Kachuck, Samuel B.** and G. A. Voth, "Simulations of granular gravitational collapse," *Physical Review E*, vol. 88, no. 6, p. 062202, Dec. 2013, ISSN: 1539-3755. DOI: 10.1103/PhysRevE.88.062202. [Online]. Available: <http://link.aps.org/doi/10.1103/PhysRevE.88.062202>.
- [J7] J. A. Perez, **Kachuck, Samuel B.**, and G. A. Voth, "Visualization of collisional substructure in granular shock waves," *Physical Review E*, vol. 78, no. 4, pp. 1–6, Oct. 2008, ISSN: 1539-3755. DOI: 10.1103/PhysRevE.78.041309. [Online]. Available: <http://link.aps.org/doi/10.1103/PhysRevE.78.041309>.

Oral Presentations

- [O1] **Kachuck, Samuel B.** and L. M. Cathles, "Nondimensionalized relaxation method for efficient computation of elastic love numbers," in *Workshop on Glacial Isostatic Adjustment and Elastic Deformation*, 2017.
- [O2] **Kachuck, Samuel B.**, L. M. Cathles, A. Amantov, A. Hormes, and W. Fjeldskaar, "Emergence constraints on late weichselian barents sea ice sheet history," in *EGU*, 2014.
- [O3] **Kachuck, Samuel B.**, "Velocity dependent energy loss in granular gravitational collapse," in *New York Condensed Matter Workshop*, 2011.

Posters

- [P1] **Kachuck, Samuel B.** and L. M. Cathles, "Using geometry to improve model fitting and experiment design for glacial isostasy," in *American Geosciences Union*, 2017.
- [P2] —, "Sloppy inversion and optimal experiment design for last glacial maximum barents sea ice sheet configuration," in *American Geosciences Union*, 2016.
- [P3] —, "Gia response suggests thick lithosphere under the appalachians," in *Institute for the Study of the Continents*, 2014.
- [P4] **Kachuck, Samuel B.**, L. M. Cathles, A. Amantov, and W. Fjeldskaar, "North american peripheral bulge constraints on mantle rheology," in *European Geosciences Union*, 2014.
- [P5] L. M. Cathles, A. Amantov, **Kachuck, Samuel B.**, and W. Fjeldskaar, "The seamod methodology of gia interpretation," in *European Geosciences Union*, 2014.
- [P6] **Kachuck, Samuel B.** and L. M. Cathles, "Lithosphere, ice history, local emergence," in *European Geosciences Union*, 2013.

- [P7] **Kachuck, Samuel B.**, "Granular gravitational collapse in realistically simulated granular gases," in *5th Annual Thesis Celebration*, 2010.