

Samuel B. Kachuck

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

Education

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

Research Experience

Graduate Research Fellow	May 2012 – Present
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.	
Graduate Research Assistant	Sep 2011 – May 2012
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>Drosophilae</i> to stabilize their flight against perturbations.	
Research Assistant	Oct 2010 – May 2011
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.	
Undergraduate Research Assistant	Aug 2008 – June 2010
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).	

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. 062 202, 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. 062 202, 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] —, "Gla 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.