Christopher Henry Gorman

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Education

Ph.D. Mathematics June 2019
Emphasis: Computational Science and Engineering
Dissertation: Applications of the Minimum Sobolev Norm and Associated Fast Algorithms
Advisors: Shivkumar Chandrasekaran and Xu Yang
University of California, Santa Barbara, CA

M.A. Mathematics December 2014
University of California, Santa Barbara, CA

A.B. *Summa Cum Laude* Mathematics and Physics May 2013
Wabash College, Crawfordsville, IN

Research Experience

Graduate Intern – Systems Engineering Summer 2018
Mark Nussmeier, FLIR Systems, Inc., Goleta, CA
Performed design tests for thermal camera development

Graduate Student – Non GSRA Summer 2016/2017
Dr. Xiaoye Sherry Li, Lawrence Berkeley National Laboratory, Berkeley, CA
Assisted in the development of fast algorithms for Hierarchically Semi-Separable matrices

Research Graduate Student III/IV Summer 2014/2015
Dr. Nan Yu, Jet Propulsion Laboratory, Caltech, Pasadena, CA
2014: Performed error progation calculations and simulations for gravity gradiometer experiments
2015: Simulated atom interferometery to help development of equivalence principle test

Physics Research Assistant Summer 2012
Dr. K. Vollmayr-Lee, Bucknell University, Lewisburg, PA
Investigated structural glasses and found scaling predictions from Spin Glass theory apply to Silica

Physics Research Assistant Summer 2011
Dr. V.V. Kresin, University of Southern California, Los Angeles, CA
Studied nanoclusters and their formation while enhancing laboratory practices

Physics Research Assistant Summer 2010
Dr. M.J. Madsen, Wabash College, Crawfordsville, IN
Used Finite Element Analysis software interfaced with *Mathematica* to design compact torodial ion trap

Publications

Madsen, M.J. and Gorman, C.H., **"Compact toroidal ion-trap design and optimization,"** *Phys. Rev. A*, **82**, 043423 (2010)

K. Vollmayr-Lee, C.H. Gorman, and H.E. Castillo, **"Universal Scaling in the Strong Glass Former SiO_2,"** J. Chem. Phys. **144**, 234510 (2016) (**JCP Editors' Pick**)

P. Ghysels, X. S. Li, C. Gorman, and F. H. Rouet, **"A robust parallel preconditioner for indefinite systems using hierarchical matrices and randomized sampling,"** *2017 IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, Orlando, FL, 2017, pp. 897-906.

S. Chandrasekaran, C.H. Gorman, and H.N. Mhaskar, **"Minimum Sobolev norm interpolation of scattered derivative data,"** Journal of Computational Physics **365**, pp. 149–172 (2018)

C. Gorman, G. Chávez, P. Ghysels, T. Mary, F. H. Rouet, and X. S. Li, **"Robust and Accurate Stopping Criteria for Adaptive Randomized Sampling in Matrix-free HSS Construction,"** SIAM J. Sci. Comput., Vol. 41, No. 5, pp. S61–S85 (2019)