

Faculty Vita: Baskar Ganapathysubramanian

I. PERSONAL HISTORY AND PROFESSIONAL EXPERIENCE

A. Educational Background

Cornell University	PhD	Mechanical and Aerospace Engineering	July 2008
Cornell University	M.S	Mechanical and Aerospace Engineering	Nov 2006
Indian Institute of Technology	B.Tech	Mechanical Engineering	June 2003

B. List of Academic Positions since Final Degree

2008 – present	Assistant Professor, Mechanical Engineering, Iowa State University
2009 – present	Assistant Professor, Electrical and Computer Engineering (by courtesy), Iowa State University
2008 – 2011	William March Scholar, Mechanical Engineering, Iowa State University
2008 – present	Faculty Affiliate, D.O.E Ames Laboratory

C. Honors, Recognitions, and Outstanding Achievements

Research

- 2012 NSF CAREER Award “CAREER: A Predictive Modeling Framework for Exploring Process-Structure-Property Relationships in Organic Solar Cells”
- Journal paper “*Sparse grid collocation schemes for stochastic natural convection problems*” (2007) is **Top 10 most cited paper** in the *Journal of Computational Physics* in a 5 year period (2005-2010)
- “*A predictive modeling framework for morphology and structure evolution in thin film organic photovoltaic cells*” Invited symposium plenary speaker in the symposium “Computational & Experimental Studies of Thin Film Growth: An Atomistic View”, International Conference on Metallurgical Coatings and Thin Films (ICMCTF 2011), San Diego, CA, May2-6, 2011.
- Invited participant in “Multi-Scale Modeling Planning Workshop” for the Air Force Office of Sponsored Research (AFOSR) to better define and prioritize the scientific challenges that must be addressed to have the desired maximum impact on the structural prognosis needs of the US Air Force, Wright-Patterson AFB, Dayton, OH, Dec 9-10, 2009.
- Invited participant in the Institute for Mathematics and its Application (IMA) weeklong workshop “Computing with Uncertainty: Mathematical Modeling, Numerical Approximation and Large Scale Optimization of Complex Systems with Uncertainty”, October 18-22, 2010.
- **William March Scholar** in Mechanical Engineering, Aug 2008-Aug 2011, Iowa State University
- Finalist in the 19th **Robert. J. Melosh Medal** competition for the best paper award in Finite element analysis (Swiss Federal Institute of Technology (ETH), Zurich, April 2007).

Diversity, Mentoring and Outreach

- **Best Poster award (Second place)** by NSF-REU participant (Mr Dondasse Ismael, “Exploring the isoperimetric problem: Insights for optimizing solar cells”) at the 6th **Peach**

State Louis Stokes Alliance for Minority Participation (PS-LSAMP), University of Georgia, Athens, Oct 14-15, 2011

- **Best Poster award (First place)** by NSF-REU participant (Ms Kahni PrOut, “Analyzing the Morphological Structure of a Polymer Photovoltaic Cell through Computational Homology”) at the 5th *Peach State Louis Stokes Alliance for Minority Participation* (PS-LSAMP), University of Georgia, Athens, Sept 25, 2010
- **Best undergraduate research paper** (Student: Robert Jaeger, “Effect of Surface Roughness on Newtonian/Non-Newtonian Microfluidics”) at the 2010 SES (Society for Engineering Sciences) Annual Meeting, Ames, IA, Oct 3-6, 2010.
- Faculty lead for WiME: “**Women in Mechanical Engineering**” – a program with a three pronged approach to enhance women participation in mechanical engineering – retention, outreach, and recruitment. Resulted in enhancing women enrollment in the ME program from 76 to 128 women (7.0% to 10%) from 2009-2012.
- Record of mentoring *community college students* into engineering (via the CCLI program of DOE).
- Record of maintaining research collaborations with *minority-serving 4-year institutions* (Savannah State University, and University of Puerto Rico, Mayaguez) with emphasis on outreach and recruiting to graduate program.

Teaching

- Nominated for **ISU Award for Early Achievement in Teaching** 2012
- Nominated for ASEE award for **Outstanding New Mechanical Engineering Educator** 2012

D. Formally Invited Lectures and Invited Conference Presentations

Invited Lectures

- “*Computationally exploring process, nanostructure and property relationships in organic solar cells*”
 - 19) School of Polymer Science and Engineering, *University of Akron*, Jan 2012
 - 18) Mechanical Engineering, *University of Pittsburg*, Apr 2012
- “*New ways to look at old data: Constructing low-dimensional stochastic wind models from meteorology data*”
 - 17) Mechanical Engineering, *University of Iowa*, Oct 2011
 - 16) Wind Energy Institute, *Iowa State University*, Oct 2011
- “*Computationally exploring process, nanostructure and property relationships in organic solar cells*”
 - 15) Electronics Materials Group, National Institute of Standards and Technology, Oct 2011
- “*Towards predictive modeling of thin film organic photovoltaic devices: Linking fabrication process, nanostructure and property*”
 - 14) Mechanical and Aerospace Engineering, *Rutgers University*, Oct 2011
- “*A predictive modeling framework for morphology evolution in thin film organic photovoltaic cells*”
 - 13) Material Science and Engineering, *Stanford University*, May 2011
 - 12) Mechanical and Aerospace Engineering, *UC San Diego*, May 2011

- *"Flow through heterogeneous porous media: A stochastic variational multiscale framework"*,
 - 11) Mechanical and Industrial Engineering, *University of Iowa*, April 23, 2009
 - 10) Mathematics, *Iowa State University*, October 5, 2009
 - 9) MIT MMEC Seminar, *MIT*, March 11, 2008
 - 8) MEAM, *University of Pennsylvania*, Feb 7, 2008
 - 7) Mechanical Engineering, *UC Santa Barbara*, March 31, 2008
 - 6) Mechanical Engineering, *Iowa State University*, April 8, 2008
- *"Sparse grid collocation strategies for high dimensional stochastic differential equations"*
 - 5) MEAM, *University of Pennsylvania*, April 23, 2008
- *"A scalable framework for the solution of stochastic inverse problems using a sparse grid collocation approach"*
 - 4) Aero-Astro Department, *MIT*, March 12, 2008
- *"Computational strategies for constructing stochastic reduced order models"*,
 - 3) Civil and Environmental Engineering, *Cornell University*, Nov 13, 2007.
- *"Computational control of directional solidification"*
 - 2) Cornell Electron Devices Society, *Cornell University*, Sept 14, 2007
- *"Modeling diffusion in random heterogeneous media: Data-driven models, stochastic collocation and the variational multi-scale method"*
 - 1) Institute of Mechanical Systems, *ETH Zurich*, April 27, 2007

Invited Conference Presentations

- *"A predictive modeling framework for morphology evolution in thin film organic photovoltaic cells"*, Invited symposium plenary speaker in the symposium "Computational & Experimental Studies of Thin Film Growth: An Atomistic View" International Conference on Metallurgical Coatings and Thin Films (ICMCTF 2010), San Diego, CA, May 2-6, 2011.
- *"Computational Strategies for UQ: Fault Tolerant Collocation and Input Model Generation"*, Invited presentation at the symposium "Numerical Methods for Stochastic Computation and Uncertainty Quantification" at CSE11, *SIAM Conference on Computational Science and Engineering*, Reno, NV, March 2-6, 2011.
- *"A Sparse Grid Collocation Approach to Solving Stochastic Inverse Problems"*, Invited presentation at the symposium "Data Assimilation and Statistical Inverse Problems" at CSE09, *SIAM Conference on Computational Science and Engineering*, Miami, FL, March 2-6, 2009.
- *"A stochastic multiscale framework for modeling flow through random heterogeneous porous media"*, Invited presentation at the symposium "Stochastic Material Models" at *10th U.S. National Congress on Computational Mechanics (USNCCMX)*, July 16-19, 2009, Columbus, OH.

E. Grants and Contracts Received

Title: ***AF: Small: Parallel Methods for Large, Atomic-scale Quantitative Analysis of Materials (Co-PI)***
 Agency: NSF-CCF

Dates: July 2009-May 2012
 Total amount: \$ 497,784

Title: ***CDI-Type II: Dimensionality-Reduction and Reconstruction Tools for Atom Probe Tomography (Co-PI)***

Agency: NSF-PHY
 Dates: Sept 2009-Aug 2013
 Total amount: \$ 952,884

Title: ***Enhancing green building efficiency through fabric ducting (PI)***

Agency: DuctSox Corporation/IPRT
 Dates: Dec 2011-Dec 2012
 Total amount: \$ 57,590

Title: ***Increasing Building Energy Efficiency by Using Fabric Ducting (PI)***

Agency: DuctSox Corporation/IPRT
 Dates: Nov 2009-May 2011
 Total amount: \$ 41,578

Title: ***CAREER: A Predictive Modeling Framework for Exploring Process-Structure-Property Relationships in Organic Solar Cells***

Agency: NSF-CMMI
 Dates: Sept 2012-Sept 2017
 Total amount: \$ 400,000

F. Policy, Advisory or Corporate Panels or Boards

- ***Great Lakes Consortium for Petascale Computation***: Institutional representative and secondary board member, Aug 2009 – present.
- Invited panelist in “Multi-Scale Modeling Planning Workshop” for the Air Force Office of Sponsored Research (AFOSR) to better define and prioritize the scientific challenges that must be addressed to have the desired maximum impact on the structural prognosis needs of the US Air Force, Wright-Patterson AFB, Dayton OH, Dec 9-10 2009.

II. PUBLICATIONS AND CREATIVE WORKS

A. Doctoral thesis title

“*Computational strategies for data-driven modeling of stochastic systems*”, Cornell University, 2008

B. Articles in Journals

1. C. Shyam Sunder, G. Baskar, V. Babu, D. Strenski, *Parallel Performance of the Interpolation Supplemented Lattice Boltzman Method*, **Lecture Notes in Computer Science**, 2913 (2003) 428-437.
2. B. Ganapathysubramanian, N. Zabaras, *Using magnetic field gradients to control the directional solidification of alloys and the growth of single crystals*, **Journal of Crystal Growth**, 270 (2004) 255-272.
3. B. Ganapathysubramanian, N. Zabaras, *Control of solidification of nonconducting materials using tailored magnetic fields*, **Journal of Crystal Growth**, 276 (2005) 299-316.
4. B. Ganapathysubramanian, N. Zabaras, *On the control of solidification of conducting materials using magnetic fields and magnetic field gradients*, **International Journal of Heat and Mass Transfer**, 48 (2005) 4174-4189.
5. C. Shyam Sunder, G. Baskar, V. Babu, D. Strenski, *Detailed Performance Analysis of the Interpolation Supplemented Lattice Boltzman Method on the Cray T3E and Cray X1*, **International Journal of High Performance Computing Applications**, 20 (2006) 557-570.
6. N. Zabaras, B. Ganapathysubramanian, L. Tan, *Modeling dendritic solidification with melt convection using the extended finite element method (XFEM) and level set methods*, **Journal of Computational Physics**, 218 (2006) 200-227.
7. B. Ganapathysubramanian, N. Zabaras, *Sparse grid collocation methods for stochastic natural convection problems*, **Journal of Computational Physics**, 225 (2007) 652-685.
8. B. Ganapathysubramanian, N. Zabaras, *Modeling diffusion in random heterogeneous media: Data-driven models, stochastic collocation and the variational multi-scale method*, **Journal of Computational Physics**, 226 (2007) 326-353.
9. B. Ganapathysubramanian, N. Zabaras, *A seamless approach towards stochastic modeling: Sparse grid collocation and data driven input models*, **Finite Elements in Analysis and Design**, invited paper for the 19th Melosh Competition, 44 (2008) 298-320.
10. B. Ganapathysubramanian, N. Zabaras, *A non-linear dimension reduction methodology for generating data-driven stochastic input models*, **Journal of Computational Physics**, 227 (2008). 6612-6637.

11. N. Zabaras, B. Ganapathysubramanian, *A scalable framework for the solution of stochastic inverse problems using a sparse grid collocation approach*, **Journal of Computational Physics**, 227 (2008) 4697-4735.
12. B. Ganapathysubramanian, N. Zabaras, *Modeling multiscale diffusion processes in random heterogeneous media*, **Computer Methods in Applied Mechanics and Engineering**, 197 (2008) 3560--3573.
13. B. Ganapathysubramanian, N. Zabaras, *A stochastic multiscale framework for modeling flow through heterogeneous porous media*, **Journal of Computational Physics**, 228 (2009) 591—618.
14. B. Ganapathysubramanian, *Using data to account for lack of data: Linking material informatics with stochastic analysis*, **Journal of Metals**, 61 (2009) 54—59.
15. R. Rajaram, U. Vaidya, M. Fardad, B. Ganapathysubramanian, *Stability in the almost everywhere sense: A linear transfer operator approach*, **Journal of Mathematical Analysis and Applications**, 368 (2010) 144-156.
16. J. Ren, B. Ganapathysubramanian, S. Sundararajan, *Experimental analysis of the surface roughness evolution of etched glass for micro/nanofluidic devices*, **Journal of Micromechanics and Microengineering**, 21 (2011) 025012.
17. O. Wodo, B. Ganapathysubramanian, *Computationally efficient solution to the Cahn-Hilliard equation: adaptive implicit time schemes, mesh sensitivity analysis and the 3D isoperimetric problem*, **Journal of Computational Physics**, 230 (2011) 6037—6060.
18. A. Fontanini, M. Olsen, B. Ganapathysubramanian, *Thermal comparison between ceiling diffusers and fabric ductwork diffusers for green buildings*, **Energy and Buildings**, in press, doi: 10.1016/j.enbuild.2011.07.00.
19. S. Jape, J.A. Wickert, B. Ganapathysubramanian, *Exploring the effect of stick-slip friction transition across tape-roller interface on the transmission of lateral vibration*, **IEEE Transactions on Magnetics**, 2012 DOI 10.1109/TMAG.2011.2169978.
20. H. K. Kodali, B. Ganapathysubramanian, *Computer simulation of heterogeneous polymer photovoltaic devices*, **Modeling and Simulation in Material Science and Engineering**, in press.
21. K. S. Nawla, H. Kodali, B. Ganapathysubramanian, S. Chaudhary, *Dependence of recombination mechanisms and strength on processing conditions in polymer solar cells*, **Applied Physics Letters**, 99, 263301 (2011).
22. K. S. Nawla, H. Kodali, B. Ganapathysubramanian, S. Chaudhary, *Enhanced Charge Separation in Organic Photovoltaic Films Doped with Ferroelectric Dipoles*, **Energy and Environmental Science**, in press.

23. O.Wodo, B. Ganapathysubramanian, *Modeling morphology evolution during solvent-based fabrication of organic solar cells*, **Computational Material Science**, 55, April 2012, 113–126.
24. O. Wodo, S. Tirthapura, S. Chaudhary, B. Ganapathysubramanian, *A graph-based formulation for characterizing morphology with application to organic solar cells*, **Organic Electronics**, accepted for publication.
25. O. Wodo, S. Tirthapura, S. Chaudhary, B. Ganapathysubramanian, *Computational Characterization of Bulk Heterojunction Nanomorphology*, **Journal of Applied Physics**, under review.
26. H. Kodali, B. Ganapathysubramanian, *A computational framework to investigate charge transport in heterogeneous organic photovoltaic devices*, **CMAME**, under review.
27. D. Busch, Q. Zou, B. Ganapathysubramanian, *A near real-time framework for extracting tip-sample forces in dynamic atomic force microscopy (dAFM)*, **Communications in Computational Physics**, under review.
28. Y. Xie, H. Hu, B. Ganapathysubramanian, *Phase transitions in vortex shedding in the wake of a heated circular cylinder at low Reynolds number*, **Physics of Fluids**, submitted.
29. S. Samudrala, O. Wodo, K. Rajan, B. Ganapathysubramanian, *A Graph-Theoretic Approach for Characterization of Precipitates in Alloys from Atom Probe Tomography data*, **Microscopy and Microanalysis**, under review.
30. S. Samudrala, P. Balachandran, K. Rajan, B. Ganapathysubramanian, *A Nonlinear dimensionality reduction toolkit to accelerate structure-property-process investigations*, **Computational Material Science**, submitted.
31. B. Ganapathysubramanian, U. Vaidya, S. Dasgupta, *Cooperative control of contaminant spread in oceanic flows*, **Journal of Applied Physics**, submitted.
32. Y. Xie, J. Zola, B. Ganapathysubramanian, *Fault Tolerant Adaptive Sparse Grid Collocation framework for stochastic problems on massively parallel architectures*, **Journal of Computational Physics**, submitted.
33. Q. Guo, D. Rajeskwi, E. Takle, B. Ganapathysubramanian, *Data-driven, location-specific wind-models: Using meteorology data to construct low-dimensional stochastic wind models*, **Wind Energy**, submitted.
34. H.K. Kodali, B. Ganapathysubramanian, *Sensitivity analysis of excitonic drift-diffusion equations for organic bulk heterojunction solar cells*, **Solar energy materials and solar cells**, submitted.

35. Q. Guo, M-C. Hsu, Y. Bazilevs, B. Ganapathysubramaniana, Investigating ply orientation uncertainty on wind turbine blade performance: A Stochastic-Isogeometric approach, *CMAME*, in preparation.
36. S. Samudrala, B. Ganapathysubramanian, *Extracting topological properties using manifold learning strategies*, *Computational Material Science*, in preparation.
37. R. Jaeger, J. Ren, Y. Xie, M. Olsen, S. Sundararajan, B. Ganapathysubramanian, *Investigating the effect of nanoscale surface roughness on microfluidic flow: experiment, theory and modeling*, *Journal of Fluid Mechanics*, in preparation.
38. Y. Xie, J. Zola, K. Rzacca, B. Ganapathysubramanian, *User-level scheduling of malleable jobs: Application to optimal computing of stochastic PDEs*, *Journal of Parallel and Distributed Computing*, in preparation.
39. O. Wodo, H.K. Kodali, J. Zola, B. Ganapathysubramanian, *COMA, cloud open morphology analyzer for organic solar cells application*, *Solar Energy Materials and Solar Cells*, in preparation.

C. Bulletins, Reports, or Conference Proceedings That Have Undergone Stringent Editorial Review by Peers (in print or accepted).

1. N. Zabararas and B. Ganapathysubramanian, "**Melt flow control using magnetic fields and magnetic field gradients**", invited presentation at the symposium on 'Computational electro-magneto-fluid-dynamics' (G. Dulikravich, organizer), Sixth World Congress on Computational Mechanics (WCCM VI) in conjunction with the Second Asian-Pacific Congress on Computational Mechanics (APCOM'04), Beijing, China, September 5-10, 2004.
2. N. Zabararas, X. Ma and B. Ganapathysubramanian, "**Non-linear data driven model reduction techniques for stochastic PDE systems**", PLENARY LECTURE presented at the 6th GRACM International Congress on Computational Mechanics Thessaloniki, Greece, June 19-21, 2008.
3. K. Wang, U. Vaidya, B. Ganapathysubramanian and H. Hu, "**Experimental Data Analysis of the Vortex Structures in the Wakes of Flapping Wings**", AIAA-2010-5078, 28th AIAA Applied Aerodynamics Conference, Chicago, Illinois, USA, 28 June – 1 July 2010.
4. U. Vaidya, B. Ganapathysubramanian, A. Raghunathan, "**Transfer operator method for control in fluid flows**", presented at the Joint 48th IEEE Conference on Decision and Control and 28th Chinese Control Conference, Shanghai, P.R. China, Dec 16-18, 2009 (Acceptance rate 52%).
5. D. Busch, J. Ren, Q. Zou, B. Ganapathysubramanian, "**Rapid Online Quantification of Tip-Sample Interaction for High-Speed Dynamic-Mode Atomic Force Microscope**

Imaging”, presented at the 2011 American Control Conference, San Francisco, June 29- July 2, 2011 (***Acceptance rate 62%***).

H. Abstracts (in print or accepted) and Technical Presentations

- 1) V. Babu, G. Baskar, “*Simulation of the unsteady flow around rectangular cylinders using the ISLB method*”, 34th AIAA Fluid Dynamics Conference and Exhibit; Portland, OR; June 28 - July 1, 2004.
- 2) N. Zabarar and B. Ganapathysubramanian, “*Melt flow control using magnetic fields and magnetic field gradients*”, invited presentation at the symposium on ‘Computational electro-magneto-fluid-dynamics’ (G. Dulikravich, organizer), Sixth World Congress on Computational Mechanics (WCCM VI) in conjunction with the Second Asian-Pacific Congress on Computational Mechanics (APCOM’04), Beijing, China, September 5-10, 2004.
- 3) B. Ganapathysubramanian, L. Tan and N. Zabarar, Modeling dendritic solidification with fluid flow using X-FEM and level set techniques, presented in the symposium ‘Recent Advances in Enriched Finite Element Technology ’ (Jack Chessa, organizer), in the proceedings of the 8th US National Congress in Computational Mechanics, The University of Texas at Austin, Austin, TX, July 24-28, 2005.
- 4) B. Ganapathysubramanian, D. Samanta and N. Zabarar, “*On the control of convection in the solidification of alloys using tailored magnetic fields*”, presented in the symposium ‘Coupled Nonlinear Flow and Transport Phenomena’ (Carey Graham, organizer), in the proceedings of the 8th US National Congress in Computational Mechanics, The University of Texas at Austin, Austin, TX, July 24-28, 2005.
- 5) B. Ganapathysubramanian, V. Sundararaghavan and N. Zabarar, “*Molecular dynamics approach for investigation of grain boundary response with applications to continuum simulation of failure in nano-crystalline materials*”, Proceedings of the 3rd M.I.T. Conference on Computational Fluid and Solid Mechanics, presented at the Symposium on ‘Molecular Methods in Mechanics’ (N. G. Hadjiconstantinou, organizer), Massachusetts Institute of Technology, Cambridge, MA, June 14 - 17, 2005.
- 6) B. Ganapathysubramanian and N. Zabarar, “*Tailored magnetic fields for controlled semiconductor growth*”, presented at the ‘Computational electro-magneto-fluid-dynamics’ symposium (G. Dulikravich et al., organizers) in the Seventh World Congress on Computational Mechanics, Century Plaza Hotel & Spa Los Angeles, California, USA, July 16-22, 2006.
- 7) B. Ganapathysubramanian and N. Zabarar, “*The Stefan problem: A stochastic analysis using the extended finite element method*”, presented at the ‘Enriched finite element methods for evolving discontinuities and interfaces (sanctioned by the IUTAM through the cooperative agreement between UACM and IUTAM)’ symposium (N. Moes and J. Dolbow organizers) in the Seventh World Congress on Computational Mechanics, Century Plaza Hotel & Spa Los Angeles, California, USA, July 16-22, 2006.
- 8) N. Zabarar and B. Ganapathysubramanian, “*Sparse grid collocation schemes for stochastic convection problems*”, presented at the 2006 APS Division of Fluid Mechanics 59th Annual Meeting, Tampa, FL, November 19-21, 2006.
- 9) N. Zabarar and B. Ganapathysubramanian, “*Modeling diffusion in random heterogeneous media: Data-driven microstructure models, stochastic collocation and the variational multiscale method*”, presented at the ‘Stochastic Galerkin and Stochastic Collocation for

- SPDEs' symposium (Raul Tempone and Fabio Nobile, organizers) in the SIAM - CSE07, SIAM Conference on Computational Science and Engineering, Costa Mesa, CA, February 19 - 23, 2007.
- 10) B. Ganapathysubramanian and N. Zabaras, "*Controlling semiconductor growth using magnetic fields and rotation*", presented at the 'Materials Processing under the Influence of External Fields' symposium in the 2007 TMS Annual Meeting & Exhibition (Qingyu Han et al. organizers), Orlando, FL, February 25 - March 1st, 2007.
 - 11) B. Ganapathysubramanian and N. Zabaras, "*Topological characterization of adsorption phenomena using multi-body potential expansions*", presented at the 'Advances in Computational Materials Science and Engineering Methods' symposium in the 2007 TMS Annual Meeting & Exhibition (Koenraad Janssens; Veena Tikare; Richard LeSar, organizers), Orlando, FL, February 25 - March 1st, 2007.
 - 12) B. Ganapathysubramanian and N. Zabaras, "*A nonlinear dimension reduction strategy for generating data driven stochastic input models*", presented at the 'Uncertainty Modeling and Quantification in Computational Mechanics,' symposium in the 9th National Congress on Computational Mechanics, (R. Ghanem, J. Red-Horse, G. Schueller and C. Soize, organizers), San Francisco, CA, July 22-26, 2007.
 - 13) N. Zabaras and B. Ganapathysubramanian, "*A data driven approach for generating reduced-order stochastic models of random heterogeneous media*", presented at the '3-Dimensional Materials Science' symposium in the 2008 TMS Annual Meeting & Exhibition, (M. D. Uchic, E. M. Taleff, A. C. Lewis, J. P. Simmons, M. J. DeGraef, organizers), New Orleans, Louisiana, March 9-13, 2008.
 - 14) B. Ganapathysubramanian and N. Zabaras, "*Multibody expansions: An ab-initio based transferable potential for computational thermodynamics*", presented at the 'Computational thermodynamics and kinetics' symposium in the 2008 TMS Annual Meeting & Exhibition, (Y. Wang, L.-Q. Chen, J. J. Hoyt, Y. U. Wang, organizers), New Orleans, Louisiana, March 9-13, 2008.
 - 15) B. Ganapathysubramanian and N. Zabaras, "*Integrated thermo-magneto-hydrodynamic control of Bridgman growth of semiconductor single crystals*", presented at the '9th Global Innovations Symposium: Trends in Integrated Computational Materials Engineering for Materials Processing and Manufacturing' in the 2008 TMS Annual Meeting & Exhibition, (C. C Battaile, A. Misra, J.A. Himes, J. W. Sears, organizers), New Orleans, Louisiana, March 9-13, 2008.
 - 16) N. Zabaras and B. Ganapathysubramanian, "*A Non-Linear Dimension Reduction Methodology for Generating Data-Driven Stochastic Input Models*", presented at the 'Algorithms and Analysis in Uncertainty Quantification' symposium in the 2008 SIAM Annual Meeting, (Xiaoliang Wan and G. Karniadakis, organizers), San Diego CA, July 7-11, 2008.
 - 17) N. Zabaras and B. Ganapathysubramanian, "*Data driven reduced order models for the representation of polycrystalline microstructures*", presented at the 'Characterization of Minerals, Metals and Materials' symposium (Toru H. Okabe, Ann M. Hagni, Sergio Neves Monteiro, organizers) at the 2009 TMS Annual Meeting & Exhibition, San Francisco, CA, February 15-19. 2009.
 - 18) B. Ganapathysubramanian and N. Zabaras, "*Characterizing adsorption on metallic surfaces: effect of composition*", presented at the 'Computational Thermodynamics and Kinetics' symposium (Long Qing Chen, Yunzhi Wang, Pascal Bellon, Yongmei Jin,

- organizers) at the 2009 TMS Annual Meeting & Exhibition, San Francisco, CA, February 15-19, 2009.
- 19) B. Ganapathysubramanian, “A *scalable framework for stochastic inverse/design problems*”, presented at “Data Assimilation and Statistical Inverse Problems” at CSE09, SIAM Conference on Computational Science and Engineering, Miami, FL, March 2-6, 2009.
 - 20) Baskar Ganapathysubramanian, “A *stochastic variational multiscale framework for flow through random heterogeneous media*”, presented at the ‘Stochastic material models’ symposium (Sharif Rahman et al., organizers) at the 10th U.S. National Congress in Computational Mechanics, Columbus, OH, July 16-19, 2009.
 - 21) Krishna Rajan, Baskar Ganapathysubramanian, Srinivas Aluru, “*Data Mining and Informatics for Quantitative Atom Probe Tomography*”, Microscopy and Microanalysis, Richmond, VA, July 26-30 2009.
 - 22) Hari Krishna Kodali, Baskar Ganapathysubramanian, “*Using stabilized finite elements for understanding the performance of organic solar cells*”, presented at the 62 Division of Fluid Dynamics Meeting of the 2009 American Physical Society, Minneapolis, MN, Nov 22-24, 2009.
 - 23) Hari Krishna Kodali, Baskar Ganapathysubramanian, “A *computational framework for accelerated performance assessment of organic solar cells*”, presented at the 2010 MRS Spring Meeting, San Francisco, CA, Apr 5-9, 2010.
 - 24) Olga Wodo, Baskar Ganapathysubramanian, “*Phase Field modeling approach to morphology evolution during fabrication of Polymer:Fullerene organic solar cells*”, presented at the 2010 MRS Spring Meeting, San Francisco, CA, Apr 5-9, 2010.
 - 25) Hari Krishna Kodali, Baskar Ganapathysubramanian, “A *computational framework for microstructure sensitive performance characterization of organic solar cells*”, presented at 9th World Congress on Computational Mechanics, Sydney, Australia, July 19-23, 2010.
 - 26) Baskar Ganapathysubramanian, Sai Samudrala, Yu Xie, “A *Scalable Computational Framework For Data-driven Stochastic Model Generation*”, presented at 9th World Congress on Computational Mechanics, Sydney, Australia, July 19-23, 2010.
 - 27) Olga Wodo, Baskar Ganapathysubramanian, “*Multiscale framework to model morphological evolution during spin-coating of active layer for organic solar cells*”, presented at 9th World Congress on Computational Mechanics, Sydney, Australia, July 19-23, 2010.
 - 28) Sai Kiranmayee Samudrala, Jaroslaw Zola, Srinivas Aluru, Baskar Ganapathysubramanian, “A *Scalable Computational Framework for Manifold Learning – Comparison on Distributed and Shared Memory Architectures*”, presented at 9th World Congress on Computational Mechanics, Sydney, Australia, July 19-23, 2010.
 - 29) Hari Krishna Kodali, Baskar Ganapathysubramanian, “A *computational framework for accelerated performance assessment of organic solar cells*”, presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010.
 - 30) D. Busch, J. Ren, Q. Zou, B. Ganapathysubramanian, “*In-situ Reconstruction of Tip-sample Interactions for Atomic Force Microscope*”, presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010.
 - 31) Y. Xie, H. Hu, B. Ganapathysubramanian, “*Influence of Cylinder Aspect Ratio on the Mode Transition in the Wake behind a Heated Circular Cylinder*”, presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010.

- 32) A. Fontanini, M. Olsen, B. Ganapathysubramanian, "*Comparison between Conventional and Ductwork Diffusers for Green Buildings: Experimental and Computational Studies*", presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010.
- 33) J. Ren, M. Olsen, B. Ganapathysubramanian, S. Sundararajan, "*Evolution of Random Roughness in Microchannel Materials and its Impact on Laminar Fluid Flow*", presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010.
- 34) S. Jape, J.A. Wickert, B. Ganapathysubramanian, "*Lateral Vibration of a Travelling Tensioned Euler-Bernoulli Beam with Stick-Slip End Condition*", presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010.
- 35) O. Wodo, B. Ganapathysubramanian, "*Multiscale Modeling of Fabrication Process for Organic Photovoltaics*", presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010
- 36) **(Best Undergraduate Paper Award)** R. Jaeger, B. Ganapathysubramanian, "*Effect of Surface Roughness on Newtonian/Non-Newtonian Microfluidics*", presented at the 2010 SES Spring, Ames, IA, Oct 3-6, 2010.
- 37) **(Best Poster Award)** Kahni PrOut, O. Wodo, B. Ganapathysubramanian, "*Analyzing the Morphological Structure of a Polymer Photovoltaic Cell through Computational Homology*", 5th Peach State Louis Stokes Alliance for Minority Participation (PS-LSAMP), University of Georgia, Athens, Sept 25, 2010.
- 38) B. Ganapathysubramanian, S. Samudrala, Y. Xie, J. Zola, S. Aluru, "*Computational Strategies for UQ: Fault Tolerant Collocation and Input Model Generation*", presented at symposium on "Numerical Methods for Stochastic Computation and Uncertainty Quantification" at 2011 SIAM conference on Computational Science and Engineering, Reno, NV, Feb 28-March 4, 2011.
- 39) R. Jaeger, O. Wodo and B. Ganapathysubramanian, "*Morphology descriptors of bulk-heterojunctions in thin film organic solar cells*", presented at the 2011 MRS Spring Meeting, San Fransisco, CA, Apr 25-29, 2011.
- 40) O. Wodo, D. Marques, K. W. Chou, A. Hexemer, R. Li, D-M. Smilgies, K. Zhao, R. Sougrat, A. Amassian, B. Ganapathysubramanian, "*Development of an experimentally validated predictive model of morphology evolution in organic photovoltaics*", presented at the 2011 MRS Spring Meeting, San Fransisco, CA, Apr 25-29, 2011.
- 41) O. Wodo and B. Ganapathysubramanian, "*Toward predictive modeling of 3D bulk heterojunction in organic solar cells*", presented at the 2011 MRS Spring Meeting, San Fransisco, CA, Apr 25-29, 2011.
- 42) O. Wodo, M. H. Lamm, B. Ganapathysubramanian, "*From atomistic to device scale modeling of organic photovoltaics: Linking coarse-grained molecular dynamics with phase field modeling*", presented at the 2011 MRS Spring Meeting, San Fransisco, CA, Apr 25-29, 2011.
- 43) B. Ganapathysubramanian, "*A predictive modeling framework for morphology evolution in thin film organic photovoltaic cells*", symposium PLENER lecture presented in "Computational & Experimental Studies of Thin Film Growth: An Atomistic View" at the 38th International Conference on Metallurgical Coatings and Thin Films, San Diego, CA, May 2-6, 2011.
- 44) D. Busch, J. Ren, Q. Zou, B. Ganapathysubramanian, "*Rapid Online Quantification of Tip-Sample Interaction for High-Speed Dynamic-Mode Atomic Force Microscope Imaging*," American Control Conference (ACC), 2011, pp.2879-2884, June 29 2011-July 1 2011.

- 45) D. Busch, B. Ganapathysubramanian, “*Rapid On-Line Atomic Force Microscope Interaction-Force Quantification Utilizing Graphical Processing Units*”, Presented in “Inverse Problems: Theory, Algorithms, and Applications” at the 11th US National Congress on Computational Mechanics, Minneapolis, MN, July 25-28, 2011.
- 46) O. Wodo, B. Ganapathysubramanian, “*Graph and computational homology concepts to streamline process-structure-property relationships: Application to organic thin film devices*”, Presented in “Image-Based and Statistics-Based Computational Modeling of Materials” at the 11th US National Congress on Computational Mechanics, Minneapolis, MN, July 25-28, 2011.
- 47) Y. Xie, J. Zola, S. Aluru, B. Ganapathysubramanian, “*Fault Tolerant Adaptive Sparse Grid Collocation over Heterogeneous Computing Architectures*”, Presented in “Computational Methodologies for Uncertainty Quantification & Stochastic PDE-based Models for Predictive Simulations” at the 11th US National Congress on Computational Mechanics, Minneapolis, MN, July 25-28, 2011.
- 48) O. Wodo, B. Ganapathysubramanian, “*Computationally Efficient Modeling of Evaporation Induced Phase Separation: Addressing Challenges Related to Multiple Temporal and Spatial Scales*”, Presented in “efficient and Reliable Multiscale Modeling Techniques for Practical Applications” at the 11th US National Congress on Computational Mechanics, Minneapolis, MN, July 25-28, 2011.
- 49) R. Jaeger, Y. Xie, J. Ren, M. Olsen, S. Sundararajan, B. Ganapathysubramanian, “*Investigating the Effect of Nano-scale Surface Roughness on Microfluidic Flow: Newtonian and Non-Newtonian Fluids*”, Presented in “Advances in Multiscale Methods for Surface/Interfacial and Transport Phenomena and Application to Bio/Nano Systems” at the 11th US National Congress on Computational Mechanics, Minneapolis, MN, July 25-28, 2011.
- 50) A. Fontanini, M Olsen, B. Ganapathysubramanian, “*Tailored Ductwork Systems for Green Buildings: Thermal Comparison Between Ceiling Diffusers and Fabric Ductwork Diffusers*”, Presented in “Flow and Transport in Heterogeneous Porous Media” at the 11th US National Congress on Computational Mechanics, Minneapolis, MN, July 25-28, 2011.
- 51) K-W. Chou, R. Li, D. Marques, E. Li, O. Wodo, B. Ganapathysubramanian, R. Gassaway, A. Biocca, A. Hexemer, J. E. Anthony, S. Thoroddsen, A. Amassian, “*Time-resolved characterization of the nanoscale structure and morphology of spin-cast bulk-heterojunction photoactive thin films*”, Presented at the Optics & Photonics SPIE conference, San Diego CA, Aug 21-25, 2011.
- 52) O. Wodo, S. Tirthapura, S. Chaudhary and B. Ganapathysubramanian, “*Novel computational characterization methods for probing 3D morphology of thin film organic solar cells*”, MRS: Directed Self-Assembly of Materials Workshop, Nashville TN, Sept 28-Oct 1, 2011.
- 53) O. Wodo, S. Pfeifer, B. Ganapathysubramanian, “*Toward controlling morphology evolution in thin organic films: evaporation rate and substrate effects*”, MRS: Directed Self-Assembly of Materials Workshop, Nashville TN, Sept 28-Oct 1, 2011.
- 54) (**Best Poster award - Second place**) Dondasse Ismael, O. Wodo, B. Ganapathysubramanian, “Exploring the isoperimetric problem: Insights for optimizing solar cells” presented at 6th Peach State Louis Stokes Alliance for Minority Participation (PS-LSAMP), University of Georgia, Athens, Oct 14-15, 2011.

- 55) S. Samudrala, B. Ganapathysubramanian, “*Extracting Topological Properties using Manifold Learning Techniques*”, presented at the 2011 SIAM conference on Applied Algebraic Geometry, North Carolina State University, Raleigh, NC, Oct 6-9, 2011.
- 56) K. S. Nalwa; H. K. Kodali; B. Ganapathysubramanian Sumit Chaudhary , “*Processing Conditions of Active Layer Determines Whether the Dominant Recombination Mechanism in Polymer Solar Cells is Bimolecular or Interfacial*”, presented at the 2011 MRS Fall Meeting, Boston, MA, Nov 28- Dec 2, 2011.
- 57) K. S. Nalwa, J. Carr, R. Mahadevapuram, H. K. Kodali, S. Bose, Y. Chen, J. W. Petrich, B. Ganapathysubramanian, S. Chaudhary, “*Enhanced Exciton Dissociation in Organic Photovoltaic Layers Doped with Ferroelectric Dipoles*”, presented at the 2011 MRS Fall Meeting, Boston, MA, Nov 28- Dec 2, 2011.
- 58) S. Pfeifer, O. Wodo, B. Ganapathysubramanian, “*Using Substrate Patterning to Tune Morphology in Organic Solar Cells*”, presented at the 2011 MRS Fall Meeting, Boston, MA, Nov 28- Dec 2, 2011.
- 59) O. Wodo, A. Amassian, B. Ganapathysubramanian, “*Quantifying Sensitivity of Morphology Evolution to Solvent Effects during Fabrication of Organic Solar Cells*”, presented at the 2011 MRS Fall Meeting, Boston, MA, Nov 28- Dec 2, 2011.
- 60) A. Amassian, O. Wodo, B. Yan, K. W. Chou, R. Li, K. Zhao, R. Sougrat, D. Cha, B. Ganapathysubramanian, “*Injecting Computation into the Investigation of Morphological Evolution of the Bulk Heterojunction Layer*”, presented at the 2011 MRS Fall Meeting, Boston, MA, Nov 28- Dec 2, 2011.
- 61) H. K. Kodali, B. Ganapathysubramanian, “*Electrode Contact Engineering to Improve Charge Collection in Heterogeneous Polymer Solar Cells*”, presented at the 2011 MRS Fall Meeting, Boston, MA, Nov 28- Dec 2, 2011.
- 62) O. Wodo, H.K. Kodali, B. Ganapathysubramanian, “*Hierarchical Data Mining to Link BHJ Structure with Properties of Organic Solar Cells*”, presented at the 2011 MRS Fall Meeting, Boston, MA, Nov 28- Dec 2, 2011.
- 63) S. Chaudhary, K. Nalwa, J. Carr, R. Mahadevapuram, H.K. Kodali, B. Ganapathysubramanian, “*More efficient polymer solar cells by doping with ferroelectric dipoles*”, Invited talk, TMS 2012.
- 64) S. Samudrala, J. Zola, S. Aluru, B. Ganapathysubramanian, “*Parallel Implementation of PCA and Isomap*”, SIAM conference on Parallel Processing for Scientific Computing (SIAM PP12), Savannah, Georgia, Feb 15-17, 2012.
- 65) O. Wodo, B. Ganapathysubramanian, “*Quantifying Transport Characteristics of Heterogeneous Morphologies: A Graph Based Formulation*”, presented at the 2012 MRS Spring Meeting, San Francisco, CA, Apr 9-13, 2012.
- 66) O. Wodo, H.K. Kodali, B. Ganapathysubramanian, “*Quantifying the relative importance of different morphological features on organic PV performance*”, presented at the 2012 MRS Spring Meeting, San Francisco, CA, Apr 9-13, 2012.
- 67) O. Wodo, B. Ganapathysubramanian, “*A phase-space analysis to understand morphology formation in organic thin films*”, presented at the 2012 MRS Spring Meeting, San Francisco, CA, Apr 9-13, 2012.
- 68) O. Wodo, S. Pfeifer, B. Ganapathysubramanian, “*A Computational Approach Towards Substrate Tailored Morphology in Organic photovoltaics*”, presented at the 2012 MRS Spring Meeting, San Francisco, CA, Apr 9-13, 2012.
- 69) A. Kim, J. Lau, B. Ganapathysubramanian, “*Minimisation of Expected Compliance and Variance in Level-Set Topology Optimisation Using a Sparse Grid Collocation Method*”,

- presented at the 10th World Congress on Computational Mechanics, Sao Paulo, Brazil, July 8-13, 2012.
- 70) Q. Guo, D. Rajeskwi, E. Takle, B. Ganapathysubramanian, “*Constructing low-dimensional stochastic wind models from meteorology data*”, presented at the 10th World Congress on Computational Mechanics, Sao Paulo, Brazil, July 8-13, 2012.
 - 71) A. Fontanini, U. Vaidya, B. Ganapathysubramanian, “*Dynamical system formulation and control of multi-zone natural ventilated buildings*”, presented at the 10th World Congress on Computational Mechanics, Sao Paulo, Brazil, July 8-13, 2012.
 - 72) Y. Xie, B. Ganapathysubramanian, “*Fault Tolerant Adaptive Sparse Grid Collocation over Heterogeneous Computing Architectures: Application to exploring tailored flow effects in microchannels*”, presented at the 10th World Congress on Computational Mechanics, Sao Paulo, Brazil, July 8-13, 2012.
 - 73) O. Wodo, Y. Xie, B. Ganapathysubramanian, “*Hat trick: predictive modeling of multi physics phenomena during fabrication of thin organic films*”, presented at the 10th World Congress on Computational Mechanics, Sao Paulo, Brazil, July 8-13, 2012.
 - 74) S. Sundararajan, B. Ganapathysubramanian, S. Subramaniam, T. Heindal, “*WiME: a departmental effort to improve recruitment, retention and engagement of women students in Mechanical Engineering*”, 119th Annual Conference of the American Society of Engineering Education, San Antonio, June 10-13, 2012.

III. INSTRUCTION AND SUPERVISION**A. Instruction at Iowa State University**

Year/Semester	Class	Credits	Number of students	Student evaluations score	Department Average*
Spring 2009	ME 475: Modeling and Simulation	3	13	4.63	3.83
Spring 2010	ME 436: Heat Transfer	4	118	4.15	3.97
Spring 2011	ME 436: Heat Transfer	4	112	3.82	3.84
Spring 2011	ME 475: Modeling and Simulation	3	17	4.08	3.84
Fall 2011	ME 538: Advanced Fluid Flow	3	25	4.82	3.82

*Scored on a scale of 1-5 with 5 being highest

B. Curricular Development Activity

- M E 436. Heat Transfer Laboratory:** Separate stand-alone modules were developed to incorporate aspects of Computational Fluid Dynamics into the undergraduate Fluid dynamics (ME 335) and Heat Transfer (ME 436) Laboratories. This was accomplished through an **Undergraduate Laboratory Development proposal** funded by the department of Mechanical Engineering in AY 2009-2010
- M E 475. Modeling and Simulation:** Course on Modeling and Simulation (ME 475) incorporated course project that utilized student expertise in computational design and modeling to link with the **capstone design project**.

C. Supervision of Graduate Student Research

	Name	Level	Date	Status
1	Hari Krishna Kodali,	PhD	Nov 2008 – present	Passed PhD qualifier
2	Yu Xie	PhD	Aug 2009 – present	Passed PhD qualifier
3	Quing Guo (co-advised with Dr. Jonathan Wickert)	PhD	Nov 2009 – present	Passed PhD qualifier
4	Sai Kiranmayee Samudrala	PhD	Sept 2008 – present	Passed PhD qualifier
5	David Busch	MS	Aug 2009 – - Nov 2011	Graduated
6	Sameer Jape (co-advised with Dr. Jonathan Wickert)	MS	May 2009 – -May 2011	Graduated

7	Anthony Fontanini (co-advised with Dr. Michael Olsen)	MS/PhD	Dec 2009 – present	
8	Robert Jaeger	MS	Aug 2010 - present	
9	Spencer Pfiefer	MS	Dec 2011-present	

D. Supervision of Post-Doctoral Students and Professional Staff

1. Olga Wodo PhD (Czestochowa University of Technology, Poland, 2008), *Predictive morphology modeling of organic thin film solar cells using the stochastic Cahn-Hilliard equation*, Sep 2009-Sept 2012

E. Supervision of Undergraduate Research and Independent Study

	Name	Degree	School	Year supervised
1	Robert Jaeger	BS ME	ISU	2010
2	Kahntinetta Pr'Out	BS Mathematic Sciences	University of Georgia	2010
3	Blair Knutson	BS Mechanical Sciences	Dordt College	2010
4	Ismael Dondase	BS Mechanical Engineering	Georgia Tech/Savannah State University	2011
5	Douglas Grosser	MS Chemical Engineering	UC San Diego	2011
6	Keith Nehring	BS Mechanical Engineering	ISU/Central College	2011
7	Spencer Pfiefer	BS Mechanical Engineering	ISU	2011
8	Cheong Yeong	BS Mechanical Engineering	ISU	2011
9	Nan Zhang	BS Mechanical Engineering	ISU	2011
10	Shane Gerkin	BS Mechanical Engineering	ISU	2011-2012
11	Shaun VanWeelden	BS Mechanical Engineering	ISU	2012

E. Service on Thesis Committees Other than Own Advisees

Currently serving on 16 PhD committees in the departments of Mechanical, Electrical and Computer, Chemical and Biological Engineering, and Aerospace Engineering

IV. SERVICE (PUBLIC, PROFESSIONAL/DISCIPLINARY, AND UNIVERSITY)

A. Service to Disciplinary and Professional Societies or Associations

- 1 Great Lakes Consortium for PetaScale Computation (GLCPC)
Board of directors (Alternate for Prof. Srinivas Aluru for ISU)
2009-current
- 2 Society for Engineering Sciences conference organization committee, 2010
Society for Engineering Sciences (SES) board
2010
Member of the organizing committee, symposium organizer, and session chair
- 3 10th World Congress on Computational mechanics,
Mini- Symposium Organizer with Yuri Bazilevs (UCSD) "*Computational Methods for Wind Engineering with Emphasis on Wind Energy*"
4. Reviewer: Journal of Computational Physics, International Journal of Heat and Mass Transfer, International Journal of Numerical methods in Engineering, ASHRAE Journal, Finite Elements in Analysis and Design, AIAA Journal, Water Resource and Management, DOE-SCGF, NSF.

C. University/Campus Service

1. **Departmental Seminar Series**: Coordinator AY's 2009-2012, Invited distinguished speakers from across the country. This included 3 NAE members. The seminar series was divided into five sessions for each of the five strategic research thrust areas. Faculty from each research thrust area were invited to nominate seminar speakers. This ensured that all areas of interest to the department were covered during the academic year.
2. **Coordinator for the Women in ME program (WiME)**. AY 2010-2012, Involved in the working group of WiME that oversaw programs and operations issues of WiME. Started a professional development aspect to WiME called "Chat-with-ME" where established women faculty and other role models from across the country were invited to have an informal meeting with the women in the department.
3. **Mechanical Engineering Undergraduate Education Committee**, AY 2008-2009, AY 2009-2010, 2010-2011, Member of committee in charge of 2012 ABET accreditation preparation
4. **Mechanical Engineering Faculty Recruiting Committee**, AY 2008-2009, 2010-2011, Member
5. **Mechanical Engineering Course Development Committee**, Chair for ME 436 (Heat Transfer), AY 2010-2011,
6. **Mechanical Engineering Chair Search Committee**, AY 2011-2012

Ganapathysubramanian, Baskar. Associate Professor of Mechanical Engineering Iowa State University. baskarg@iastate.edu. 515-294-7442. 306 Lab of Mechanics 2519 Union Dr. Ames, IA 50011. Department Website: <https://www.me.iastate.edu/bglab/baskar-ganapathysubramanian/>. © The Pennsylvania State University Materials Research Institute All rights reserved. The 2DCC-MIP is funded by NSF cooperative agreement DMR-1539916. Baskar Ganapathysubramanian Full scale 3D CFD analysis of double paned windows: effect of flexure on R values (PI) Pella Corporation/IPRT. 23. Revised 11-1-2013. Carolyn-Lawrence Dill, Asheesh Ganapathysubramanian, and 17 other faculty ISU PIIR: Big Data in Digital Agriculture Iowa State Office of President July 2015 - June 2018. Singh, Baskar. Baskar Ganapathysubramanian. Associate Professor. Iowa State University. Ames, United States. Primary. View All. Baskar Ganapathysubramanian. Overview. Bio. Network. Publications. Editorial Contributions. Impact.