

## KEVIN E. BASSLER

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### Education:

1990 Ph.D. in Physics Carnegie Mellon University, Thesis Advisor: Prof. Robert B. Griffiths  
1987 M.S. in Physics Carnegie Mellon University  
1985 B.S. in Physics Ohio University, Honors Tutorial College

### Employment History:

2014-Present John and Rebecca Moores Professor of Physics and Mathematics, UH  
2011-2014 Professor of Physics and Mathematics, University of Houston  
2010-2011 Professor of Physics, University of Houston  
2005-2010 Associate Professor of Physics, University of Houston  
2000-2005 Assistant Professor of Physics, University of Houston  
1998-2000 Visiting/Research Assistant Professor of Physics, University of Houston  
1995-1997 Postdoctoral Research Associate, Louisiana State University  
1992-1995 Postdoctoral Research Associate, Virginia Polytechnic Institute  
1991-1992 Postdoctoral Fellow, Northwestern University

### Honors and Awards:

- Fellow of the American Physical Society, 2014
- John and Rebecca Moores Endowed Chaired Professorship, 2014
- Convener, Advanced Study Group, MPI-PKS, Dresden, Germany, 2013
- Benjamin Meaker Visiting Professorship, University of Bristol, UK, 2012
- Australian Research Council (ARC) International Fellow, 2009
- UH Award for Excellence in Research and Scholarship, 2005
- UH NS&M John C. Butler Teaching Excellence Award, 2003
- Alfred P. Sloan Research Fellow, 2001
- Summa Cum Laude Graduate, Ohio University, 1985

### Recent Research Highlights:

- Developed first accurate numerical method for prediction of final morphological structure of a strain-induced nanostructured semiconductor multilayer
- Discovered that interfacial strain can induce morphological instability leading to the anomalous formation of nanostructures in nearly lattice matched semiconductor multilayers
- Developed a novel algorithm for optimizing congested transport through complex networked structures, and applied it to wireless networks, and vehicular traffic
- Discovered an efficient algorithm for sampling graphs with any prescribed degree sequence, or with any specified degree-degree correlations
- Developed efficient methods and algorithms for analyzing the functional structure of complex networks revealed through bigdata information sets

### Expertise:

- Condensed Matter Theory and Statistical Physics
- Computational Physics; Monte Carlo Simulations; Stochastic Processes
- Complex System Dynamics, especially that of Complex Networks
- Growth and Evolutionary Processes
- Transport Processes

**Five Relevant Publications:**

- T. Chen, P. Singh, and K.E. Bassler, "Network community detection using modularity density measures," JSTAT 053406 (2018).
- R. Chauhan, J. Ravi, P. Datta, T.L. Chen, D. Schnappinger, K.E. Bassler, G. Balazsi, and M.L. Gennaro, "Reconstruction and topological characterization of the sigma factor regulatory network of Mycobacterium tuberculosis," Nature Comm. 7, 11062 (2016).
- C. Orsini, M.M. Dankulov, P. Colomer-de-Simon, A. Jamakovic, P. Mahadevan, A. Vahdat, K.E. Bassler, Z. Toroczkai, M. Boguna, G. Caldarelli, S. Fortunato, and D. Krioukov, "Quantifying randomness in real networks," Nature Comm. 6, 8627 (2016).
- Y.Y. Zhao, B. Li, W. Li, H.Y. Chen, K.E. Bassler, and C.S. Ting, "Effects of single- and multi-substituted Zn ions in 122-type iron-based superconductors," Phys. Rev. B 93, 144510 (2016).
- S. Trevino III, A. Nyberg, C.I. Del Genio, and K.E. Bassler, "Fast and Accurate Determination of Modularity and It's Effect Size," JSTAT P02003 (2015).