

Timothy D. Andersen

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<http://sites.google.com/site/andersenphysics/home>

- EDUCATION
- ◇ **The University of Texas at Austin** (Aug 1999 – May 2002)
B.S. in Computer Science, GPA: 3.5
 - ◇ **Rensselaer Polytechnic Institute**, Troy, NY, Dec 2005
Masters in Applied Mathematics, GPA: 3.94
 - ◇ **Rensselaer Polytechnic Institute**, Troy, NY, (Aug 2003 – Aug 2007)
Ph.D. in Mathematics, GPA: 3.94
 - ◇ **Awards and Honors**
 - VIGRE Graduate Fellowship (Fall 2003 - Spring 2005)
- RESEARCH INTERESTS
- My primary research interests are random processes and statistical mechanics, log-potential particle systems, gravitational systems, negative temperatures, specific heats, and spatial inversion.
- DISSERTATION
- ◇ “Trapped Slender Vortex Filaments in Statistical Equilibrium” Advisor: Prof. Chjan C. Lim
- JOURNAL PAPERS
- ◇ “A length scale formula for confined Quasi-2D plasmas”, Andersen, T. D. and Lim. C. C., *J. Plasma Physics*, vol. 75, no. 4, pp. 437-454, 2009.
 - ◇ “Explicit Formulae for nearly parallel vortex filaments in statistical equilibrium” Andersen, T. D. and Lim, C. C. *Geophysical and Astrophysical Fluid Dynamics*, vol. 102, no. 3, Jun. 2008.
 - ◇ “Negative Specific Heat in a Quasi-2D Generalized Vorticity Model”, Andersen, T. D. and Lim, C. C., *Phys. Rev. Lett.*, vol. 99, no. 165001, Oct. 2007.
- BOOKS
- ◇ *Statistics of vortex filaments*, Andersen, T. and Lim. C. Springer Science+Business Media, to appear in 2010.
- CONF. PAPERS
- ◇ “Trapped slender vortex filaments in statistical equilibrium” Andersen, T. and Lim, C., *Proceedings of GAMM 2006*.
 - ◇ “Recent Advances in 2D and 2.5D Vortex Statistics and Dynamics”, Lim, C. *Proc. of AIAA*, June 2005. (Andersen, T. D. as co-author listed in acknowledgments.)
- PATENTS
- ◇ **Interference-Resilient Joint MAC and Routing Design for Wireless Ad hoc Networks**, U.S. patent no. 7570593, Elbatt, T. and Andersen, T. D., filed 2004, granted 2009.

- ◇ **Efficient lightweight information dissemination algorithm for mobile wireless Ad Hoc networks**, U.S. patent no. 7420954, Elbatt, T. and Andersen, T. D., filed 2003, granted 2008.

- CONFERENCES AND WORKSHOPS
- ◇ Joint Meetings of AMS and MAA, New Orleans, Jan 2007. (Contributed paper.)
 - ◇ RPI Accepted Graduate Students Day Poster Session, Mar 2005. (Contributed poster.)
 - ◇ Workshop on Markov Chains in Algorithms and Stat. Physics, MSRI, Berkeley, Feb 2005.
 - ◇ Graduate Student Mathematical Modeling Camp, Jun 2004.
 - ◇ International Conference on Complex Systems (ICCS), Boston, May 2004.

- NONACADEMIC CONF. PAPERS
- ◇ “Cross-layer Interference-Aware Routing for Wireless Multi-hop Networks” Elbatt, T. and Andersen, T. IEEE IWCMC 2006.
 - ◇ “Performance evaluation of multiple access protocols for ad hoc networks using directional antennas.” ElBatt, T., Andersen, T., Ryu, B., IEEE WCNC, New Orleans, Mar. 2003.
 - ◇ “Multi-tier Mobile Ad Hoc Networks: Architecture, Protocols, and Performance.” Ryu, B., Elbatt, T., Zhang, Y., Andersen, T., IEEE MILCOM 2003, Boston, Oct. 2003.
 - ◇ “Multi-Tier Mobile Ad Hoc Routing.” Ryu, B., Elbatt, T., Andersen, T., IEEE VTC’03, Orlando, Oct. 2003.
 - ◇ “Research Tools for 3-D Mobile Ad Hoc Networking with Directional Antenna.” Ryu, B., Andersen, T., Ahmed, M., Elbatt, T., Peterson, A., Proc. 1st Symposium on Autonomous Intelligent Networks and Systems (AINS), UCLA, May 2002.
 - ◇ “A simple and effective cross layer networking system for mobile ad hoc networks.” Yuen, W.H., Lee, H., Andersen, T., IEEE PIMRC 2002, Lisboa, Portugal, Sep. 2002.

- NONACADEMIC WORK EXPERIENCE
- ◇ **Senior Analyst**
Daniel H. Wagner Associates, Hampton, VA (Jun 2007 – Present)
Mathematics and Operations Research Consulting
 - ◇ **Summer Associate**
RAND Corporation, Santa Monica, CA (May 2005 – Aug 2005)
Genetic Algorithms and Policy Project
 - ◇ **Research Assistant**
HRL Laboratories, Malibu, CA (Feb. 2001 – Aug. 2003)
Wireless Networking Research

- TEACHING
- ◇ **Teaching Assistant:** “Contemporary Mathematical Ideas”, RPI, Spring 2007, Instructor: Maya Kiehl
Led recitations, graded projects and exam, assisted students.

- SERVICE
- ◇ **Volunteer:** LegoTMRobotics at Mechanicville Elementary School, Spring 2007, Director: Dawnmarie Robens
Met with 4th and 5th grade students weekly for 10 weeks assisting with construction and programming of LegoTMRobots.

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TALKS AND
LECTURES

- ◇ Ph.D. oral defense talk, May 14, 2007.
- ◇ Invited one hour guest lecture on stat. mech., Intro. to Math Modeling taught by Rachel Roe-Dale at Skidmore, Saratoga Springs, NY, Mar. 28, 2007.
- ◇ “Statistical Equilibrium of Slender Vortex Filaments”, Joint Meetings of AMS and MAA, New Orleans, Jan. 2007.
- ◇ Ph.D. Candidacy Exam Talk, Sep. 28, 2006.
- ◇ Lecture on Eigenvalues/vectors for Linear Algebra (MATH 4100), Oct. 3, 2006.
- ◇ Lecture on Probability for Math of Finance (MATH 4740), Aug. 28, 2006.
- ◇ Graduate Student Seminar Talk, May 3, 2006.
- ◇ “Shaping and Navigating the Uncertain Battlespace”, **RAND** Corp., Jul. 27, 2005.
- ◇ 9 lectures in group seminar on various topics, Spring 2006, Fall 2005, Spring 2005.

REFERENCES

Chjan Lim, limc@rpi.edu (committee chair)
Jim Napolitano, napolj@rpi.edu (committee member)
Peter Kramer, kramep@rpi.edu (committee member)
Mark Holmes, holmes@rpi.edu (committee member)
Victor Roytburd, roytbv@rpi.edu (professor)