Curriculum Vitae

Michael Zingale

Future Position:

Assistant Professor of Physics and Astronomy, SUNY Stony Brook, Stony Brook, NY (beginning Jan. 2006)

Present Position:

Postdoctoral Researcher, Department of Astronomy and Astrophysics, University of California, Santa Cruz

UCO/Lick Observatory
UCSC
Santa Cruz, CA 95064

phone: (831) 459-2277

e-mail: zingale@ucolick.org
web: http://www.ucolick.org/∼zingale/

Research Interests:

Computational fluid dynamics simulation of Type Ia supernovae (both on the flame scale and the star scale), and X-ray bursts. Application of low speed hydrodynamics methods to astrophysical problems.

Education:

2000	Ph.D. in Astronomy and Astrophysics, University of Chicago *thesis*: "Helium Detonations on Neutron Stars" *advisor*: Dr. J. W. Truran
1998	M.S. in Astronomy and Astrophysics, University of Chicago
1996	B.S. in Physics and Astronomy, University of Rochester, Magna Cum Laude *thesis*: "Magnetohydrodynamical Wave Support of Molecular Clouds"
	Minor in Mathematics, University of Rochester

Work Experience:

2001-present	*University of California, Santa Cruz, Department of Astronomy and Astrophysics:* Postdoctoral Researcher for the SciDAC Supernova Science Center. Worked on simulations of turbulent thermonuclear flames in Type Ia supernova. Initiated a collaboration with the Center for Computational Science and Engineering group at Lawrence Berkeley Lab to apply low Mach number hydrodynamics methods to astrophysical flames. *advisor:* Dr. S. E. Woosley
2000-2001	*University of Chicago, Center for Astrophysical Thermonuclear Flashes:* Research Associate with the ASCI Flash Center. One of the developers of the FLASH Code. Research focused on microphysical flame simulations in Type Ia supernovae. *advisor:* Dr. J. W. Truran

Work Experience (continued):

1997-2000 *University of Chicago, Department of Astronomy and Astrophysics:*
Graduate student researcher for the Center on Astrophysical Thermonuclear Flashes. One of the developers of the FLASH Code, an adaptive-mesh, parallel hydrodynamics code. Primary research focused on numerical simulations of helium detonations on neutron stars. This research became my Ph.D. thesis.
advisor: Dr. J. W. Truran

1995-1996 *University of Rochester, Department of Physics and Astronomy:*
Investigated magnetohydrodynamical wave support of molecular clouds. This research became the basis for my senior thesis.
advisor: Dr. M. Wardle

1994 (summer) *Fermi National Accelerator Laboratory:*
Examined mass measurement techniques for the top quark at the Collider Detector Facility at Fermilab.
advisor: Dr. P. Tipton

1992 & 1993 (summer) *Princeton Plasma Physics Laboratory:*
Updated and converted physics analysis programs across computing platforms.
advisor: Dr. C. K. Phillips

Publications:

Over 20 refereed publications and conference proceedings—publication list available upon request.

Teaching Experience:

2001 *University of Chicago / Department of Computer Science:*
Teaching assistant for the Introduction to Programming in C class in the Computer Science Professional Masters Program at the University of Chicago.

1997-1998 *Center of Astronomical Research in Antarctica (CARA) outreach program:*
Planned and taught laboratories to Chicago public school students in grades 7 through 12. Developed experiments in thermodynamics, electricity and magnetism, and mechanics. Awarded the Carl Sagan award for excellence in teaching.

1996-1997 *Introductory Physics Teaching Assistant (University of Chicago):*
Taught weekly hour long discussion sections and four hour laboratory sections in basic physics. Awarded the Gregor Wentzel teaching award.

Programs:

April 2001 Guest at the Max-Planck-Institut für Astrophysik

2001 Finite Volume Upwind and Centered Methods for Hyperbolic Conservation Laws (Barcelona, Spain)

1999 NASA Summer School for High Performance Computational Earth and Space Sciences

Professional Activities:

2004	Member of the Society of Industrial and Applied Mathematics
2000-2003	Guest Appointment at Argonne National Laboratory / Mathematics and Computer Science Division
1999-2005	Member of the American Astronomical Society

Honors / Awards:

2000	Gordon Bell Award in High Performance Computing, Special Category for a paper entitled "High-Performance Reactive Fluid Flow Simulations Using Adaptive Mesh Refinement on Thousands of Processors", Calder et al. 2000. (SC 2000 conference)
2000	Carl Sagan Award for Excellence in Teaching (Dept. of Astronomy & Astrophysics, University of Chicago)
1997	Gregor Wentzel graduate teaching award (Dept. of Physics, University of Chicago)
1996	Stoddard Prize in physics for senior thesis (University of Rochester)
1996	Flagg Award for highest GPA in physics (University of Rochester)
1996	Inducted into Phi Beta Kappa honor society (University of Rochester)
1994	Inducted into Sigma Pi Sigma physics honor society (University of Rochester)

References:

Professor Robert Rosner
5640 S. Ellis Ave.
University of Chicago
Chicago, IL 60637
773-702-0560
rrosner@oddjob.uchicago.edu

Professor James Truran
5640 S. Ellis Ave.
University of Chicago
Chicago, IL 60637
773-702-9584
truran@nova.uchicago.edu

Professor Stan Woosley
UCO/Lick Observatory
UCSC
Santa Cruz, CA 95064
831-459-2976
woosley@ucolick.org