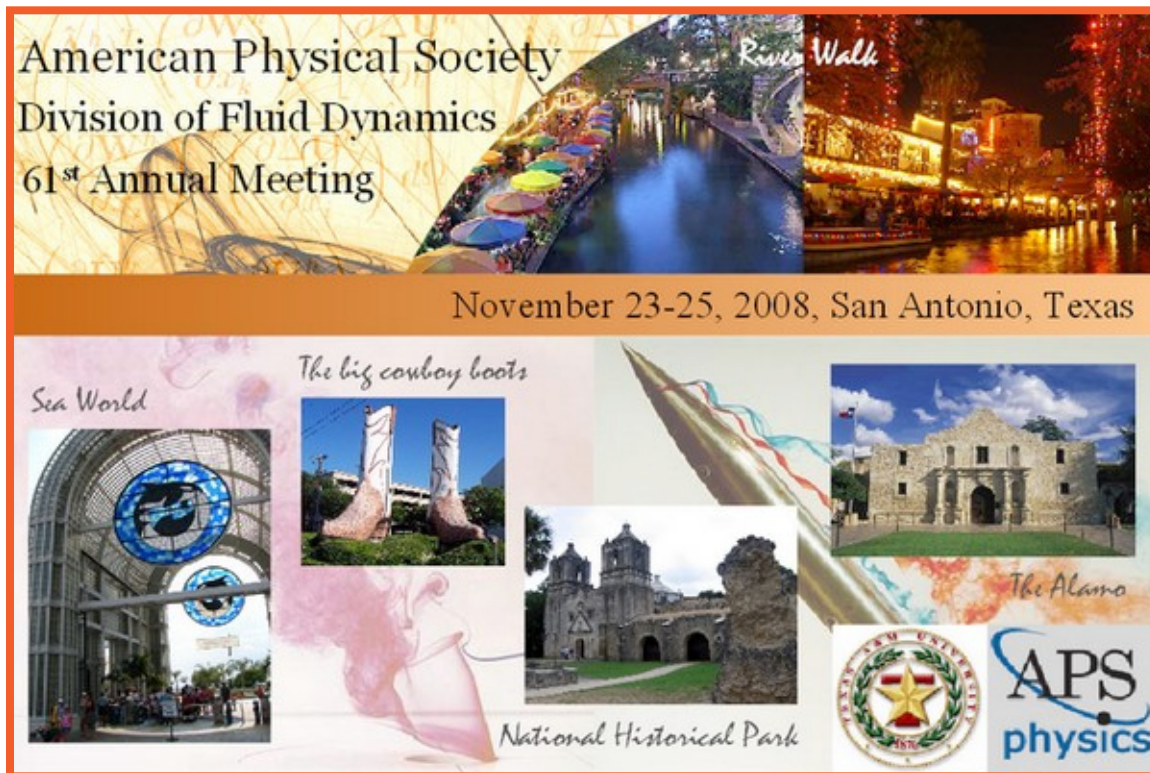


A Division of the American Physical Society



American Physical Society  
Division of Fluid Dynamics  
61<sup>st</sup> Annual Meeting

November 23-25, 2008, San Antonio, Texas

Sea World



The big cowboy boots



National Historical Park



The Alamo



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## THE 61ST ANNUAL DFD MEETING

**San Antonio, Texas**  
**November 23-25, 2008**

### Meeting Venue

The 61st Annual DFD Meeting will be held at the Henry B. Gonzalez Convention Center in San Antonio, Texas. The convention center provides significant space for technical sessions, invited talks, exhibits, breaks, and the Gallery of Fluid Motion. The conference hotels are within walking distance to the convention center with hundreds of restaurants in close proximity.

### San Antonio

From the stones of the Alamo to the meandering paths of the Riverwalk, San Antonio takes you on a journey through a land as grand

as its reputation. Walk the lines drawn for independence when you visit the Alamo—one of five Spanish colonial missions. Visitors can stroll the cobblestone sidewalks of the Riverwalk to uncover an outdoor theatre with flamenco dancers and mariachis, nationally acclaimed museums, luxury hotels and sidewalk cafes that offer everything from authentic Tex-Mex to worldly cuisines.

For more information about San Antonio, please visit the San Antonio Convention & Visitors Bureau: <http://www.visitsanantonio.com>

### Housing and Meeting Registration

Four hotels will be used for this meeting. To receive the special meeting rate, **please reference the APS room block when placing your reservation by phone.** The website and/or phone numbers for hotel reservations and the meeting registration will be available after June 16<sup>th</sup> on the program website: <http://dfd2008.tamu.edu>.

Marriott Riverwalk  
\$143 + tax, single/double  
\$153 + tax, triple/quad

Marriott Rivercenter  
\$143 + tax, single/double  
\$153 + tax, triple/quad

La Quinta Inn and Suites  
Convention Center  
\$129 + tax, single/double/triple/quad

The Historic Menger Hotel  
\$120 + tax, single/double/triple/quad

### Deadlines

#### 16 June

Meeting Registration and Hotel Reservations Open

#### 4 August

(Oral and Poster Contributed Talks)  
Abstract Submission

#### 15 September

Gallery of Fluid Motion Poster Entry Forms

#### 15 September

Video Entries to Gallery of Fluid Motion

#### 20 October

Hotel Reservations (reduced rate ends)  
**NOTE:** *Group rooms at this rate may sell out before this date*

#### 20 October

Early Conference Registration (reduced rate ends)

#### 10 November

Preregistration Conference Cancellation  
(No refund after this date)

### Scientific Program

This year's scientific program will include three award lectures, eight invited lectures, minisymposia, contributed papers, poster sessions, exhibits, and the Gallery of Fluid Motion. More than 1200 contributed abstracts, divided into 20 concurrent sessions, are anticipated.

### Awards Program

Each year the APS Division of Fluid Dynamics presents several awards: the Fluid Dynamics Prize, the Francois Frenkiel Award, and the Adreas Acrivos Dissertation Award. Winners of these awards will be announced in the Fall. A lecture by each award winner will be given at the meeting.

### Invited Lectures

**"The Physics of Spacecraft Hall-effect Thrusters"**  
Alec Gallimore, University of Michigan

**"Magnetic Field Reversals in Turbulent Dynamo"**  
Stephen Fauve, Ecole Normale Superieure, Paris

**"Turbulent Reacting Flows"**  
Elaine Oran, Naval Research Laboratory

**"Fluid Mechanics of Swallowing"**  
James Brasseur, Pennsylvania State University

**"Buoyancy-Driven Turbulence Created by Rayleigh-Taylor Instability"**  
David Youngs, Aldermaston, UK

**"Environmental Fluid Dynamics"**  
Joseph Fernando, Arizona State University

**"Complex Fluids"**  
Patrick Tabeling, MMN-ESPCI, Paris

**"Star Formation and Supersonic Turbulence"**  
Michael Norman, University of California at San Diego

### Minisymposia

There will be six Minisymposia at this year's meeting in San Antonio.

- "Videos and Multimedia for Fluids Instruction"**  
*An educational minisymposium organized by Jean Hertzberg and John Cimbala*
- "Lagrangian Coherent Structures in Fluid Flows"**  
*A tutorial/review minisymposium organized by John Dabiri*
- "Flow Visualization in Low Temperature He"**  
*A focus/international minisymposium organized by Steven Van Sciver*
- "High Rayleigh Number Convection: Is There an Ultimate Regime?"**  
*A focus/international minisymposium organized by Detlef Lohse*
- "Tip Streaming and Flow/EHD Flow Focusing"**  
*A focus/international minisymposium organized by Osman Basaran, Ron Suryo and Robert Collins*

## 6. “Computational Challenges in Modeling Transient Detonation”

*A tutorial minisymposium organized by David Kasso and Scott Stewart*

### Gallery of Fluid Motion

The 26<sup>th</sup> Annual Gallery of Fluid Motion will be held as part of the Meeting. The Gallery consists of aesthetically pleasing, insightful displays of still pictures, computer graphics, and video clips submitted by attendees. Both computational and experimental fluid dynamics entries are encouraged. Poster and video entries must not duplicate one another. Outstanding posters, selected by a panel of referees or originality and ability to convey and exchange information, will be honored during the meeting, placed on display at the Annual APS meeting in March 2009 and will appear in the annual Gallery of Fluid Motion article in Physics of Fluids.

Questions and entries should be addressed to:

#### Video Gallery

Adonios Karpetsis  
Texas A&M University  
karpetsis@aero.tamu.edu

#### Poster Gallery

Prof. Efstathios Michaelides  
University of Texas at San Antonio  
Stathis.michaelides@utsa.edu

### Audiovisual Equipment

All rooms will be equipped with an LCD projector, screen, microphone, and pointer. Speakers must provide their own laptop computer to use with the projector. A Speaker Ready Room will be available to run through presentations and ensure that they work smoothly with the LCD projection equipment.

### Conference Reception

Always a highlight of the meeting, the Conference Reception will be held at the historic Sunset Station on Sunday evening, November 23rd.

Sunset Station was built in 1902 as the Southern Pacific Railroad Depot, nestled in the historic St. Paul District of downtown San Antonio and is designated as a National Historic Landmark. It has undergone a multi-million dollar renovation that restored the venue to its original grandeur. The Depot, also known as, “The Building of 1,000 Lights” and “The Crown Jewel” is adorned with ornate vaulted ceilings, stained glass windows and a grand staircase.

The reception is included in the registration fee for those who register as APS Members, Nonmembers, Graduate Students and Retired. Additional tickets may be purchased for \$75.

### Exhibitors

Do not miss the opportunity to reach over 1400 attendees of the APS/DFD Annual Meeting! For more information on exhibits or sponsorship, please contact Meetings and More at (301)641-4150 or [mtgs911@aol.com](mailto:mtgs911@aol.com).

### Meeting Hosts

The meeting is hosted by:

- Texas A&M University
- University of Texas at Austin
- University of Texas at San Antonio
- Southern Methodist University
- University of Houston
- University of New Mexico
- Oklahoma State University
- Los Alamos National Laboratory

Program Organizer  
Prof. Sharath Girimaji  
Texas A&M University  
[girimaji@aeromail.tamu.edu](mailto:girimaji@aeromail.tamu.edu)

### Meeting Information: Contact Meetings and More

- General Information (Monica Malouf)  
Phone: (301) 526-8129
- Exhibiting Information (Peggy Holland)  
Phone: (301)641-4150  
Fax: (301) 320-2155  
Email: [mtgs911@aol.com](mailto:mtgs911@aol.com)

### Conference Website

<http://dfd2008.tamu.edu>

### Future DFD Annual Meetings

61st Annual Meeting of the Division of Fluid Dynamics  
San Antonio, Texas, November 23-25, 2008

62nd Annual Meeting of the Division of Fluid Dynamics  
Minneapolis, Minnesota, November 22-24, 2009

63rd Annual Meeting of the Division of Fluid Dynamics  
Long Beach, California, November 21-23, 2010

64th Annual Meeting of the Division of Fluid Dynamics  
Baltimore, Maryland, November 20-22, 2011

## DFD 2007 Awards, Prizes, New Fellows, and Gallery Winners



### 2007 Fluid Dynamics Prize

Guenter Ahlers, of the University of California at Santa Barbara is the recipient of the 2007 Fluid Dynamics Prize, which recognizes major contributions of fundamental fluid dynamics made during a career of outstanding work. The citation reads:

“For pioneering experimental work on fluid instabilities, low-dimensional chaos, pattern formation, and turbulent Rayleigh-Bénard convection.”



### 2007 Francois Frenkiel Award

Re'em Sari from the California Institute of Technology was the recipient of the François Frenkiel Award, which recognizes significant contributions to fluid mechanics that have been published in *Physics of Fluids* during the preceding year by young investigators. The award

citation reads “For the elegant derivation of similarity solutions describing the propagation of ultrarelativistic shock waves.”



### 2007 Andreas Acrivos Dissertation Award

David Saintillan of the Courant Institute of mathematical Sciences received the Andreas Acrivos Dissertation Award for his thesis entitled *Sciences “Collective Dynamics in Dispersions of Anisotropic and Deformable Particles.”*

The award recognizes an exceptional young scientist for original, outstanding doctoral thesis work in fluid dynamics done in the United States. Dr. Saintillan did his doctoral thesis work at Stanford University under the direction of Eric S.G. Shaqfeh and Eric Parve.

### New APS/DFD Fellows

Each year the number of new Fellows is limited to be no more than ½ of 1% of the membership. The new 2007 Fellows are:



**Lance Collins**, for new physical understandings of the dynamics of aerosol particles, droplets, polymer molecules, and reacting gases in turbulence through novel direct numerical simulations and insightful theories.



**Rodney Fox**, for ground-breaking contributions to the field of turbulent reacting flows.



**Sharath Girimaji**, for important contributions to the fundamental understanding of elementary turbulence processes; and, based on this improved knowledge, for the development of widely-used engineering closure models for turbulence and turbulent mixing.



**Peyman Givi**, for pioneering computational research on turbulent reactive flows, and especially for the development of the filtered density function methodology.



**Ari Glezer**, for in-depth insight into flow structure through innovative experiments, and the creation of fundamentally new approaches to flow control, leading to the dramatic alteration of the underlying physics.



**Yoshifumi Kimura**, for contributions to the development of our understanding of turbulent flows and the dispersion of scalars in a variety of geophysical settings through the numerical simulations and a comparison of these to theory and experiment.



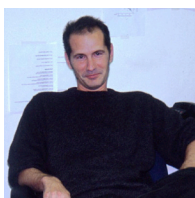
**Robert Krasny**, for his many achievements in advancing particle methods and tree-code algorithms to allow exceptionally precise computations of vortex dynamics, and his insightful use of the resulting methods to increase the fundamental understanding of regular and chaotic phenomena in fluid flows.



**Ellen Longmire**, for innovative experiments in turbulent and particle-laden flows, and the development of new and improved flow diagnostic techniques.



**Gareth McKinley**, for the development of methods for characterization of the rheology of complex liquids and improved understanding of elastic effects and instabilities.



**Michael Shelley**, for his broad-ranging contributions to computational fluid mechanics, including boundary integral techniques for interface dynamics, singularity formation in topological transitions, and fluid-body interactions.



**Stavros Tavoularis**, for contributions to turbulence, turbulent mixing, vortex dynamics, aerodynamics, thermo-hydraulics, bio-fluid dynamics, and design of flow apparatus and instrumentation. Also, for contributions to education in fluid dynamics and for promoting international collaboration and understanding.

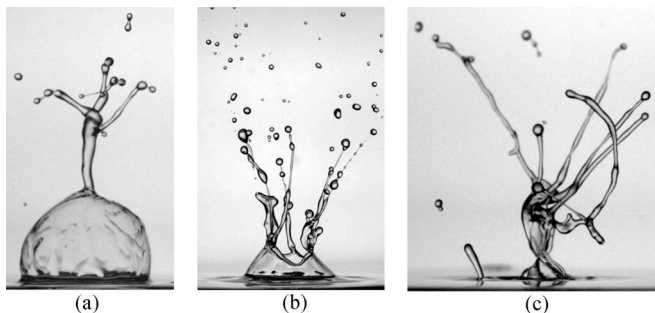


**Mark Glauser**, for his innovative use of multi-point low-dimensional methods to elucidate key physics associated with time dependent flow phenomena for flow control applications in turbulent jets, shear layers and separated flows.



**Pushpendra Singh**, for outstanding contributions to the development of efficient algorithms for the direct numerical simulations (DNS) of multiphase fluids, and for using the DNS technique in conjunction with experiments as a tool for understanding the physics of a broad range of multiphase systems.

### Winners of the 2007 Gallery of Fluid Motion



*Elastic Splash* by Grumstrup and Belmonte

### Posters

**Visualizations of the Transition to Turbulence in an Oscillatory Separated Flow** Miguel Canals and Geno Pawlak, *University of Hawaii at Manoa*

**The Life of a Water-Entry Cavity at Low Bond Number** Jeffrey M. Aristoff, Tadd T. Truscott, John W. M. Bush and Alexandra H. Techet; *Massachusetts Institute of Technology*

**Helical Instability of a Rotating Viscous Liquid Jet** J. P. Kubitschek and P. D. Weidman; *University of Colorado, Boulder*

**Air Entrainment by a Viscous Jet Impacting a Bath** Etienne Reyssat and David Quéré *PMMH, ESPCI, Paris, France*; Elise Lorenceau *LPMDI, Marne la Vallée, France*; Frédéric Restagno *LPS, Orsay, France*

**Water Bells Formed on the Underside of a Horizontal Plate** Eleanor C. Button and John E. Sader, *University of Melbourne*; Ben Dwyer, Claire Jenkins and Graeme Jameson, *University of Newcastle*

**Fractal Kelvin-Helmholtz Break-ups** J. Fontane and Joly Ensica, *Toulouse, France*; J.N. Renaud, *University of St-Andrews, UK*

### Videos

**DPIV of Mammalian Swimming** Paul Legac and Timothy Wei, *Rensselaer Polytechnic Institute*; Frank Fish, *West Chester University*; Terrie Williams, *University of Santa Cruz*; Russell Mark and Sean Hutchison, *USA Swimming/King Aquatics*

**Break Up of the Tail of a Bubble in a Non Newtonian Fluid** Enrique Soto, Roberto Zenit and Octavio Manero, *Universidad Nacional Autonoma de Mexico*

**“Black Hole” Nucleation in a Splash of Milk** Laurent Courbin, James C. Bird and Howard A. Stone, *Harvard University*; Andrew Belmonte, *Penn State University*

**Spilling Breakers and Surfactants** Xinan Liu, James Diorio and James H. Duncan, *University of Maryland*

**Helical Instability of a Rotating Viscous Liquid Jet** J. P. Kubitschek and P. D. Weidman; *University of Colorado, Boulder*

## Highlights of the 60th Annual DFD Meeting in Salt Lake City, Utah



The 2007 DFD meeting was held at the Salt Palace Convention Center in Salt Lake City, Utah. Highlights included three award lectures, eight invited lectures, and approximately 1300 additional contributed papers. There were 42 poster entries, 39 video entries, and 9 educational video submitted to the Gallery of Fluid Motion. A total of 1570 people registered for the meeting. This included 53 undergraduates and 596 graduate students. 31% of the registrants were affiliated with institutions from outside of the United States, from a total of 39 countries..

Invited lectures were presented by John Bush, Olivier Pouliquen, James Wallace, Timothy Pedley, Jane Wang, Gary Parker, Juan G. Santiago, and K.R. Sreenivassen. The invited and award lectures will be available on the APS/DFD web site ([www.aps.org/units/dfd](http://www.aps.org/units/dfd)). In addition, the meeting included five mini-symposia: *Incorporating Biology in a Fluids Curriculum*, *Lagrangian Dynamics in Turbulence*, *Fluids Demonstrations and Instructional Laboratories*, *Turbulence Simulations and Advanced Cyberinfrastructure*, and *Deformable Particle Suspensions and Solutions*.

A total of 147 contributed sessions covered a wide range of topics over the whole range of fluid dynamics. The 24th Annual Gallery of Fluid Motion included 44 poster entries and 39 video entries presenting research from the United States and many foreign countries. A new video category, Educational Videos, was introduced this year with 9 videos submitted. Highlights from the winning poster and video entries will be published in a special Gallery of Fluid Motion article in the September 2008 issue of *Physics of Fluids* as well as being posted on the *Physics of Fluids* web site.

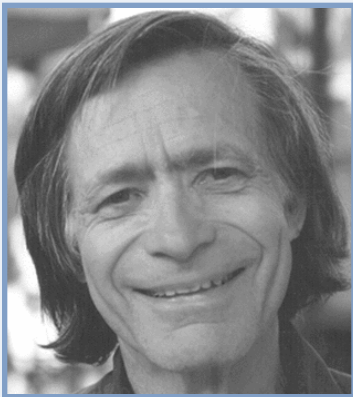
The video gallery also included entries from local high school students. Between March, 2007 and September, 2007, members of the organizing committee made over 20 visits to local high schools to discuss science, engineering, and fluid mechanics. The goal of the visits was to make students and teachers aware of fluid mechanics as an important branch of science and engineering, and to get the students and teachers involved in observing fluid flow through artistic interpretation through photography and video.

## Cyber News

Computing power is advancing rapidly, and funding agencies such as the National Science Foundation and the U.S Department of Energy are investing heavily in new computational resources and the associated Cyberinfrastructure which brings considerable benefits to researchers especially in academia. Accordingly, in the past 12 months the NSF Fluid Dynamics Program and the APS Division of Fluid Dynamics have supported or enabled several of new initiatives aimed at ensuring that a broad section of our research community can become, or remain, actively engaged in these developments. A first step in these efforts was a "Cyber-Fluid Dynamics" Workshop held at NSF Headquarters in July 2007, which brought together about 40 leading members of our research community, NSF program officers, and representatives of the NSF-supported TeraGrid network of supercomputer centers for a 1.5 day program of wide-ranging presentations and extensive periods of synergistic discussion. The prime objectives of the Workshop were to share expertise and discuss future outlook in advanced computing, to build a virtual community for Cyber-enabled knowledge discovery in fluid dynamics, and to promote public awareness, education and outreach in our field. NSF officials including the Assistant Director for Engineering, and program directors representing the Office of Cyberinfrastructure and the Engineering Virtual Organizations program provided the lead-off presentations. Main themes covered in the sessions included high-performance computing, research in turbulence, flow control, complex multi-physics flows, bio- and nano- fluid mechanics, as well as the more generic topic of knowledge discovery and education, including views from experimentalists. Follow-up actions from the Workshop mentioned above included consultations with the core leadership of APS-DFD before a final report containing a series of recommendations, by the workshop organizers and discussion leaders was submitted to NSF in December 2007. The report and more details such as list of participants, agenda and archived presentations are available at <http://www.nsf-cyberfluids.gatech.edu>.

Simulations and Advanced Cyber-infrastructure was held at the APS Fluid Dynamics Meeting at Salt Lake City, November 2007. The five speakers included leading researchers from the US and abroad, who are known for their expertise in large-scale computations of turbulence in canonical geometries, and for their demonstrated commitment to work with others in the research community in order to maximize benefits obtained from precious resources often granted only to a small number of highly skilled research groups. Unless regular contributed talks at APS, the minisymposium setting provided the speakers with more room in their presentations to discuss the Cyber- and computer-science aspects of their work, including efforts in

posting large databases on the web for public access. To encourage future presentations of similar scope a new Cyber-Fluid Dynamics sorting category has been created for the next DFD Annual Meeting in San Antonio, November 2008. The DFD Executive Committee has just established an Ad-Hoc Committee to help coordinate our community's responses to the NSF Cyber-Fluid Dynamics report and other new developments. This committee is expected to work on promoting our community's awareness and readiness concerning future Cyber resources, on interacting with other APS units who may share similar concerns, and working with NSF officials to represent to a broader audience the importance and challenges of fluid dynamics research from a Cyber perspective. For further information please contact Phil Marcus ([pmarcus@newton.berkeley.edu](mailto:pmarcus@newton.berkeley.edu)) or P.K. Yeung ([pk.yeung@ae.gatech.edu](mailto:pk.yeung@ae.gatech.edu)).



#### **IN MEMORIAM**

**Robert H. Kraichnan** died on February 26, 2008 at 5:00pm in Santa Fe, NM. He was 80 years old. Dr. Kraichnan was considered the father of modern fluid turbulence theory. He made basic contributions that dealt with the

nonlinearity of turbulence and the construction of self-consistent approximations. At the time of his death, Dr. Kraichnan was working on fundamental issues in quantum mechanics. Dr. Kraichnan received a Ph.D degree in theoretical physics from MIT in 1949. He was Albert Einstein's personal assistant 1949-1950. Later, he worked as a research scientist at Columbia and New York Universities. From 1962 until his death, Dr. Kraichnan was self-employed. He received prime grants from several Government agencies and served as consultant to a number of organizations. He was Homewood Professor in the Mechanical Engineering Dept of John Hopkins University from 2003 until his death. Dr. Kraichnan is survived by his wife, artist and photographer Judy Moore-Kraichnan, and by his former wife Carol Gebhardt, their son John Kraichnan, and granddaughter Sasha Kraichnan. Dr. Kraichnan was a member of the National Academy of Sciences. He received the Dirac Medal of the International Center for Theoretical Physics, the Lars Onsager Prize of the American Physical Society, the Adion Medal of l'Observatoire de Nice, and other awards.

# APS/DFD 2008

## LEADERSHIP & CONTACT INFORMATION

DFD members are invited to contact the DFD Leadership with suggestions and concerns.

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**James Brasseur**  
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(11/06-10/09)  
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Tom Solomon  
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Mory Gharib  
(12/09)

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Shiyi Chen  
(12/09)

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### WEBPAGE COORDINATOR

Ken Kiger