

## Related Resources from SAE International

### Aerospace Manufacturing and Automated Fastening Conference & Exhibition

September 20-23, 2004, Sheraton West Port Hotel, St. Louis, Missouri, USA

SAE has merged the Aerospace Manufacturing Technology Conference (AMTC) with the Aerospace Automated Fastening Conference (Aerofast) to create this new, exciting event. Compelling technical sessions and a dynamic exhibit will enable attendees to explore the latest in both sub-assembly and final assembly technologies and processes. Don't miss this unique, comprehensive education and networking event for aerospace manufacturing professionals. [www.sae.org/amaf](http://www.sae.org/amaf)

### 2004 SAE World Aviation Congress: Focus on Systems Integration & Technologies

November 2-4, 2004, Reno Hilton, Reno, Nevada, USA

The World Aviation Congress provides a forum for the international aircraft design, development, operations and research communities to meet and to communicate across traditional organizational boundaries. The program will integrate technical sessions, panel discussions, and keynote speaker presentations. Conference attendees will represent industry, academia, and government and will include engineers, scientists, designers, managers, operators, educators, and students. [www.sae.org/wac](http://www.sae.org/wac)

### AeroPaks: Online SAE Aerospace and Aerospace Material Specifications Standards Delivery Service

A new online standards delivery service providing you access to the most current aerospace and aerospace material specifications standards. AeroPaks offers a customized subscription plan that lets you pay for just the documents that you NEED, full text search capabilities, and an updated search option which keeps you aware of changes and updates.

### Be the first to know!

Sign up to receive the **SAE Aerospace e-Newsletter** today! You'll receive monthly updates highlighting new and upcoming products and services from SAE that can help you solve technical problems, increase industry savvy, and supercharge your career. Just go to [www.sae.org](http://www.sae.org) and click on the MySAE button to login, then sign up for the newsletter.

### SAE Aerospace Standards on CD-ROM

This category of SAE standards includes over 3,500 Aerospace Standards (AS), Aerospace Recommended Practices (ARP), Aerospace Information Reports (AIR), and Aerospace Resource Documents (ARD), including converted Military Specifications. These guidelines steer the design and production of thousands of parts, components, systems, and equipment applicable to airframe, missile, ground support, propulsion, and accessories. Plus, this CD is updated quarterly so you will receive new, revised and cancelled standards regularly. (CDAS-2004; \$2,650 List/Member)



### SAE Aerospace Material Specifications (AMS) on CD-ROM

Access over 2,000 SAE Aerospace Material Specifications (AMS) that are recognized throughout the aerospace community and other industries - including the U.S. Department of Defense who has adopted over 900 of these documents. AMS are procurement standards, not design specifications. Only characteristics and limits are included; compliance will ensure procurement of a specific form and condition, or a specific material or process. Plus, this CD is updated quarterly so you will receive new, revised and cancelled standards regularly. (CDAMS-2004; \$3,150 List / Member)



### 2004 SAE Aerospace Standards Index

Indexed in this publication are all SAE Aerospace Standards (AS), Aerospace Recommended Practices (ARP), and Aerospace Information Reports (AIR). Find documents by title, subject, document number, keywords, new and revised documents, and DODISS-adopted documents. (ASIN2004; \$55 List / \$44 Member)



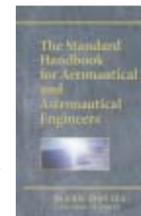
### AMS Standards Index - January 2004

This Index is the most current and comprehensive listing of Aerospace Material Specifications, enabling you to locate each document quickly and easily. Documents are indexed by subject and number, with the subject index organized into seven special interest areas including: Aircraft Maintenance Chemicals and Materials; Tolerances; Quality Control; Processes; Non-Metallic Materials and Processes; Metals; and Parts. In addition, a "Similar Specifications Index" is included, allowing you to easily find the AMS specifications that are similar to ASTM, AWS, Defense, Federal, or Military specifications. Published in January and July. (AMSJAN-2004; \$65 List / \$52 Member)



### The Standard Handbook for Aeronautical and Astronautical Engineers

This comprehensive resource delivers a combination of reference, data, and handy information - all within the pages of a single, easy-to-use volume! Containing contributions from more than 60 aerospace specialists, this handbook frames the technological applications in a perspective that specifically addresses aircraft and engineering science. From basic engineering science and mathematics to astrodynamics, it's the one-stop reference that all starting and experienced aerospace engineers need to take their work to new heights. (R-328; \$175.95 List / \$140.76 Member)



### SAE 2002 Transactions Journal of Aerospace

SAE Technical Papers have long been a source for keeping current with advancements in mobility engineering. With *SAE 2002 Transactions Journal of Aerospace*, you get an entire year's worth of technical papers covering research, trends and reviews of the latest aerospace technologies. This publication is hardbound and has an individual index to help you find the information you need. Papers in *SAE Transactions* are updated with any post-conference corrections. (V111-1; \$269.95 List / \$215.96 Member)

**SAE Aerospace**  
An SAE International Group

"The premier society dedicated to advancing mobility engineering worldwide"

# Aerospace Friction Stir Welding Symposium

June 10-11, 2004

Hyatt Regency, Albuquerque, New Mexico, USA

Learn about the latest research and technological advances in Friction Stir Welding and how this emerging technology is transforming the aerospace industry!

Topics covered:

- Advanced tooling methods
- New system and process developments
- Applications for aircraft fabrication
- Aircraft manufacturing methods
- Standards research, development, and applications

Marketers: Connect with this highly-targeted audience of aerospace engineering professionals. Details inside!

Plus, tour the world-class Eclipse Aviation facility — home of the Eclipse 500™ Jet!

[www.sae.org/stirweld](http://www.sae.org/stirweld)

## Change is the only constant... Prepare for the future in Friction Stir Welding.

Attend the SAE Aerospace Friction Stir Welding Symposium and learn about the latest research, trends, and technological advances in friction stir welding and how this emerging technology will revolutionize the aerospace industry. June 10-11, 2004, Hyatt Regency, Albuquerque, New Mexico, USA

Register before May 28th...  
all pre-registrants will be automatically entered into a prize drawing!

[www.sae.org/stirweld](http://www.sae.org/stirweld)

Visit [store.sae.org](http://store.sae.org) for complete schedules, product information, and pricing on these related SAE resources.

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# Aerospace Friction Stir Welding Symposium

June 10-11, 2004, Hyatt Regency, Albuquerque, New Mexico, USA

## OVERVIEW

### What is friction stir welding and how is it transforming the aerospace industry?



Friction stir welding is a revolutionary welding process that was first developed and patented by The Weld Institute (TWI) of Cambridge, England in 1991. Consistent with the more conventional methods of friction welding, the weld is made in the solid phase and uses a rotating pin tool to crush, stir, and forge a bond between two metal plates. Since the friction stir welding process occurs at a temperature below the melting point, the weld has superior mechanical properties and exhibits less shrinkage or distortion, even in long welds.

Since its invention, friction stir welding has received world wide attention, and is expected to change or redefine many known technologies and markets in the 21st century. The aerospace industry will benefit from the dominating trend by increasing quality and reliability standards, enhancing material functions, heightening reproducibility, improving energy efficiency, and raising cost efficiency.

This interactive, technical learning event will bring together a wide range of industry experts to discuss the latest research and the state-of-the-art applications that are being developed and used for the aerospace industry. This symposium will also identify the issues underlining the need for the support of standards development. Don't miss out on this opportunity to learn and help drive the future of this emerging technology!

## TOUR

### Eclipse Aviation: Where the Eclipse 500™ Jet and the Future Take Flight

Sunport International Airport, Albuquerque, New Mexico, USA

Attendees will have the exciting opportunity to tour Eclipse Aviation, a world-class facility for designing, certifying, and producing modern, affordable jet aircraft. In building the Eclipse 500™ Jet, Eclipse Aviation is pioneering the use of innovative manufacturing processes that speed production and lower costs. It's at this facility where emerging technologies such as friction stir welding are applied and integrated into future products that will revolutionize the transportation market. To learn more about Eclipse Aviation, visit their Web site at [www.eclipseaviation.com](http://www.eclipseaviation.com).



## HOTEL and TRAVEL INFORMATION

### Hyatt Regency Albuquerque

330 Tijeras NW  
Albuquerque, NM 87102  
Phone: 505-842-1234  
Fax: 505-843-2710

All attendees are responsible for their own lodging and travel arrangements. A block of sleeping rooms has been reserved at the Hyatt Regency Albuquerque. Reservations must be made directly with the hotel by Wednesday, May 26, 2004.

### Location

Conveniently located 10 minutes from Albuquerque International Airport, in the heart of downtown Albuquerque, adjacent to the Albuquerque Convention Center, and minutes from shopping, cultural and historic attractions.

### Room Rate

\$99 Single or Double Occupancy  
Check in 3:00 p.m.; Check out 12:00 p.m.

For additional hotel and travel information, please visit our Web site at [www.sae.org/stirweld](http://www.sae.org/stirweld).

## AGENDA

### Thursday, June 10, 2004

- 8:00 a.m. **Welcome**  
*Steve Varanay*, Sikorsky Aircraft  
*Connie Philips*, NCMS
- PANEL 1 Friction Stir Welding System Development**
- 8:30 a.m. *Brent Chistner*, Eclipse Aviation  
9:15 a.m. *Glenn Brown*, Airbus UK
- Break**
- 10:30 a.m. *Tim Zappia*, MTS Systems Corp  
11:15 a.m. *Connie Philips*, NCMS
- Luncheon** 12:00 p.m. – 1:30 p.m.
- PANEL 2 Advanced Tooling & Process Methods for Friction Stir Welding**
- 1:30 p.m. *Israel Stol*, Alcoa  
2:15 p.m. TBD
- Break**
- 3:30 p.m. *Jim Fisher*, Edison Welding Institute  
4:15 p.m. TBD  
5:00 p.m. **Networking Reception**

### Friday, June 11, 2004

- PANEL 3 Friction Stir Welding Process Development**
- 8:30 a.m. *Daniel J. Roybicki*, Lockheed Martin  
9:15 a.m. *Philip Threadgill*, TWI Corp
- Break**
- 10:30 a.m. *Gil Sylva*, MTS  
11:15 a.m. *Anil Patnaik*, South Dakota Schools of Mines and Technology
- Lunch & Closing**
- 1:00 p.m. **Technical Tour of Eclipse Aviation**

Technical program updates available at <http://www.sae.org/stirweld>.

## MARKETING SOLUTIONS

Promoting your company at this highly-focused industry event is an easy, cost-effective way to distinguish your company from the competition and build relationships with influential engineering professionals. The friction stir weld design and supply community is invited to showcase their products and services with tabletop displays and increase the visibility of their companies through exclusive sponsorship and advertising opportunities.

### Tabletop Display .....\$1,800

- One tabletop display space (6' x 30" table with two chairs)
- One complimentary symposium registration
- Recognition in the event program

Further details on all of these marketing opportunities are available at <http://www.sae.org/stirweld>. Partner with the SAE Sales Team to successfully market your company to this targeted audience by calling 724-772-7116 or email [exhibitions@sae.org](mailto:exhibitions@sae.org) today.

**ADVANCE REGISTRATION SAVES TIME AND MONEY... PLUS, WIN PRIZES!**  
Everyone who registers on or before May 28, 2004 will be automatically entered into a drawing for prizes such as a hot air balloon ride courtesy of Rainbow Ryders, Inc., Sandia Peak Aerial Tramway passes, restaurant gift certificates, and other gifts.

## Symposium Fees

### By May 28, 2004

SAE Member: \$600  
Non-Member: \$700

### After May 28, 2004

SAE Member: \$700  
Non-Member: \$800

*Fees include technical program, lunches, and networking reception.*

## Tour of Eclipse Aviation - \$15

(limit 50 registrants)

Registration is limited. Those wishing to enroll **after May 28, 2004** should first verify that space is available by calling SAE Customer Service (1-877-606-7323 U.S./Canada or 724-776-4970).

Due to the program format and the nature of the information presented, handout materials will only be available to registered attendees. This allows all information discussed to be taken in the context in which it is presented. Requests for handout materials by non-registrants will not be considered.

## REGISTRATION FORM

040296

### Aerospace Friction Stir Welding Symposium Registration

June 10-11, 2004 • Hyatt Regency • Albuquerque, New Mexico, USA

#### Register me for:

- Aerospace Friction Stir Welding Symposium (I.D. # 2004S10)  
 Eclipse Aviation Technical Tour

#### Preferred mailing address is:

- Business  Home (Check one)

SAE Member No. \_\_\_\_\_

Registrant's Name (first/m.i./last) \_\_\_\_\_

Mail Stop (if applicable) \_\_\_\_\_

Job Title \_\_\_\_\_

Company Division/Department \_\_\_\_\_

Company Name \_\_\_\_\_

Street Address \_\_\_\_\_

City \_\_\_\_\_ State or Province \_\_\_\_\_ Zip+4 or Postal Code \_\_\_\_\_

Country \_\_\_\_\_

Telephone No. (Day) \_\_\_\_\_

Telephone No. (Evening) \_\_\_\_\_

Fax No. \_\_\_\_\_

Email Address \_\_\_\_\_



SAE will do what is feasible to make its events reasonably accessible to attendees. If you have special accommodation needs, please let us know in advance by checking the box and attaching a brief description of how we can serve you better. Accommodations requested on site will be provided only if possible for us to do so on short notice.

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*Be sure to indicate on checks as well as purchase orders the names of participants, Symposium name, and dates. Please print clearly.*

Note: The SAE reserves the right to change speakers or cancel programs due to circumstances beyond its control and cannot be held responsible for costs incurred other than the registration fee.

**Conditions of Sale:** Payment must accompany this form by May 28, 2004. Registrations received after the deadline date will automatically be charged the on-site price. NO CHILDREN UNDER THE AGE OF 16 PERMITTED. All cancellations must be in writing and received by SAE prior to May 28, 2004. A \$50.00 processing fee will be assessed for each canceled registration that results in a refund. Refunds for special event/ meal tickets will not be processed after May 18, 2004. Refunds will not be issued if cancellation occurs on or after May 28, 2004.

**To register and for additional details, contact SAE:**  
Online: <http://www.sae.org/stirweld>  
E-mail: [CustomerService@sae.org](mailto:CustomerService@sae.org)  
Phone: Toll free 1-877-606-7323  
(outside US/Canada 1-724-776-4970)  
Fax: 1-724-776-0790  
Mail: Attn: Customer Service, SAE,  
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