

ASM - Atlanta

Newsletter of the Atlanta Chapter of ASM International
<http://www.asm-atlanta.org/> Normally Meets 3rd Tuesday
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Special Meeting Tuesday, October 26, 2004!
Please Note Different Time, Location & Prices this Month!

Joint AIAA/ASM Dinner Meeting

Tuesday Evening, October 26, 2004
at the Sheraton Galleria
2844 Cobb Pkwy SW
Atlanta GA 30339

Destructive Evaluation of Extended Fatigue Testing of Retired Aircraft Fuselage Structure

presented by

Aubrey Carter
General Manager
Enabling Technologies Technical Operations
Delta Air Lines, Inc

Tuesday Evening, October 26, 2004

Social: 5:30 PM

Dinner: 6:30 PM

Program: 7:30 PM

Dinner Costs:

Members/Guests: \$15

Students: \$10

Non-members: \$19

Menu: Sliced roast beef au jus, salad, chefs choice vegetable and dessert

Reservations: Register online at www.aiaa-atlanta.org no later than COB Friday, October 22nd.

Location: Sheraton Galleria, 2844 Cobb Parkway, SE Atlanta, GA 30339. Directions:
From Hwys. 75, 85, 20: Take I-285 to the I-75/I-285 Junction; Exit Hwy. 41/Cobb Pkwy.

The **Sheraton Suites Galleria** is located directly across from the **Cobb Galleria Centre** and adjacent to the **Cumberland Mall**. From South take **Interstate 75** North to **Interstate 285 West**. Exit onto Cobb Parkway/state **Highway 41** Exit **259B**. Turn left at the light.

About the Presentation: Destructive Evaluation of Extended Fatigue Testing of Retired Aircraft Fuselage Structure:

The Federal Aviation Administration and Delta Air Lines, Inc. have teamed to conduct a destructive evaluation and extended fatigue testing of a retired commercial transport airplane. The objective of this research is to develop a knowledge base within the FAA technical community on experimental procedures, analytical methods, and data reduction approaches for destructive evaluation and extended fatigue testing of a retired aircraft for use in assessing programs aimed toward the prevention of widespread fatigue damage in the commercial fleet. Protocols for the accomplishment of teardown evaluations are also being developed, along with an interactive database that will provide users the capability of conducting parametric studies of teardown data.

The program also has a secondary objective involving the evaluation of both existing and emerging nondestructive test methods to determine the effectiveness of these technologies in the detection of fatigue multiple site damage sources of widespread fatigue damage. Inspection findings from each NDT method have been documented and probability of detection curves are being developed using the teardown data.

Eleven fuselage crown skin panels, including the skin, stringers, frames and structural joints have been removed from the teardown airplane. Four of these panels have been selected to undergo extended fatigue testing in the FAA's FASTER D-Box Pressure Test Facility located at the William J. Hughes Technical Center in Atlantic City, N.J. Testing of the first of these panels is underway, and load applications been advanced to simulate 95,000 operational pressure cycles. Seven other panels are undergoing fractographic damage characterization. An overview of this joint research program will be presented at the Joint Meeting of AIAA/ASM on October 26, 2004.

And then a Very Special Treat For November:

Plant Tour Invitation to ASM Members to the Air Products' Air Separation Plant

Did you ever wonder how hydrogen, nitrogen, oxygen, and argon are produced?

Do you know how many industries use these gases and why?

Do you want to see what it takes to cryogenically separate 800 tons per day of air into its component molecules?

If so, Air Products and ASM International invite you to find out the answers!

... When: Wednesday, November 10, 2004

**... Where: Air Products' Air Separation Plant
1535 Old Covington Rd.
Conyers, GA 30013**

... What:

10:00-10:45 Welcome and overview of the plant

(An explanation of how air is separated into its different components: nitrogen, argon, and oxygen)

10:45-12:00 Plant tour / Liquid nitrogen demonstration / Q&A

(A demonstration of liquid nitrogen and its effects on materials AND a "show and tell" that showcases some of our new technology in a wide range of fields: metals, foods, hydrogen, and medical)

12:00-1:30 Barbeque Luncheon

When arriving at the gate, you will be directed to the visitors' lot.

Air Products employees will give you a tour of the plant and explain how air is separated into its base components using cryogenic technology and then shipped to hundreds of different industries around the world.

After the tour and some FUN demonstrations on the properties of liquid nitrogen, join us for a **barbeque lunch!**

RSVP - by noon on Monday, November 1, to Marlene White, Tel: (404) 894-2850, Fax: (404) 294-9140, marlene.white@mse.gatech.edu. She will collect our reservations for the tour and forward them to Air Products, where they are due that same day!