

MARCH 2005 MEETING

**WHEN:**

Thursday, March 17<sup>th</sup>, 2005

**SCHEDULE:**

5:00 p.m. **Social Hour**

6:00 p.m. **Dinner**

Cuban style beef, chicken or fish.  
Served with white rice, black beans,  
green salad, garlic bread and soft drinks

6:30 p.m. **Speaker Presentation:**  
**Mr. Curt Rideout**

**WHERE:**

**Andres Restaurant**

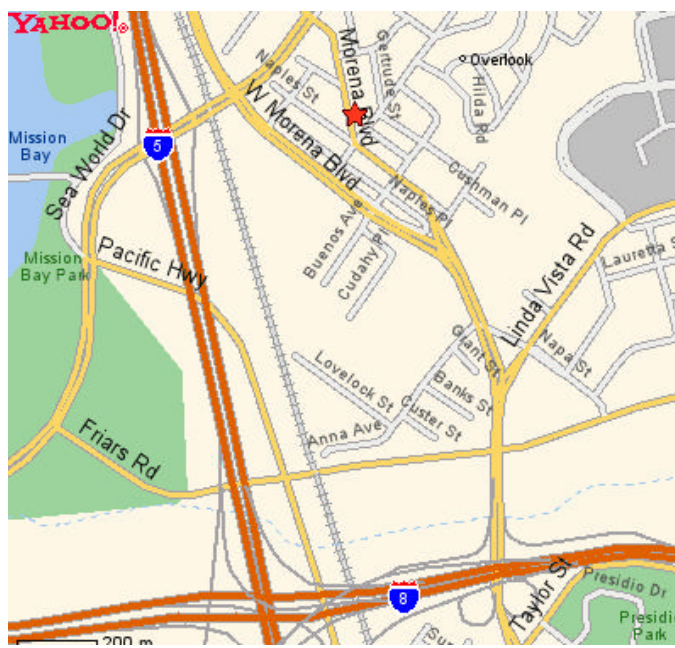
1235 Morena Blvd.  
San Diego  
(619) 276-4624

**COST:**

ASM Members - \$10  
Guests - \$15  
Students - \$5

**TO REGISTER:**

Call the ASM Info Line at (619) 685-8848,  
or send an e-mail by March 15<sup>th</sup> to  
[sandiego@asmchapters.org](mailto:sandiego@asmchapters.org)



**Improved Health Monitoring and  
Remaining Life Prediction For Turbine  
Engine and Structural Components**

*Presented by*

**Curt. A. Rideout**

**Positron Systems, Inc., Boise, Idaho**

**Abstract**

Photon Induced Positron Annihilation (PIPA) and derivative technologies are currently being used to assess fatigue, creep, thermomechanical and embrittlement damage in turbine engine components and metallic structural materials. This technology, developed at the Idaho National Laboratory and licensed to Positron Systems, Inc., provides a new approach to assessing damage and predicting useful remaining life in aerospace and power generation turbine engine components. PIPA quantifies damage by inducing positrons in the material, which seek defects, annihilate and produce gamma rays that can be used to quantify changes in the lattice structure and defect buildup.

PIPA detection of fatigue, creep, annealing effects, and operational damage has been demonstrated. Its unique capability to characterize materials at the atomic level makes the PIPA process directly applicable to non-destructively detecting manufacturing defects and operational damage at any point in component life. PIPA can be used to measure damage in metallic components several inches thick, and is not impacted by either physical geometry or the presence of surface coatings such as paint, TBC's or corrosion. Measurements have been performed on aluminum, titanium, composites and nickel based superalloys. Turbine engine components evaluated include blades, vanes, bearings, disks and single crystal blades.

**Bio**

Mr. Rideout retired from the U.S. Navy in 2001 after 22 years as a Submarine Commander where he served in senior leadership positions in varying capacities in the nuclear submarine community. Mr. Rideout has extensive knowledge of nuclear reactors and engineering, including oversight of operations, maintenance and training programs for submarine nuclear power plants. Currently he is in charge of business development for Positron Systems in the Power Generation, Military, and Government sectors and provides the technical expertise for the corporate office. Mr. Rideout earned a B.S. in Chemical Engineering and Masters Degrees in Nuclear Engineering Operations and Business Administration.

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### **Abe Hurlich Award**

Applications are currently being accepted for the 2004-2005 Abe Hurlich San Diego Chapter Student Award. This annual award is given to a local materials science student who exhibits outstanding merit in scholarship, leadership, and service. The award was established in memory of Abe Hurlich, a member and past-chair (1960) of our chapter, and past-president of ASM International (1977). The award consists of a \$1200 scholarship, one-year ASM membership, and medallion. For applications, visit at the chapter website or call the ASM Info Line at (619) 685-8848

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