



American Institute of Aeronautics and Astronautics Dayton-Cincinnati Section

Dinner Meeting

**Thursday
27 April 2006
All Welcome!**

Time

6:00 PM Eat and Socialize
7:00 PM Presentation

Location

Wright "B" Flyer Hangar
Dayton-Wright Brothers Airport
10550 Springboro Pike
Miamisburg, Ohio 45342

**Reservations (Please provide
your AIAA member # when
making reservations)**

In Cincinnati:

Lois Mapes 513-243-2436 or
Lois.Mapes@ae.ge.com

In Dayton:

Angie Gladney 937-255-2331 or
Angie.Gladney@wpafb.af.mil

Dinner Menu

Assorted Pizzas and soft drinks

Free to all AIAA Members

\$10.00 Non-Members

*Please make reservations early,
Seating is limited !*



Calibrating the Wright Brother's 1901 Wind Tunnel

Abstract: It all began as a junior high school science fair project... As part of this project, a reproduction of the Wright Brother's 1901 wind tunnel and the lift balance they used to measure the lift coefficient of test airfoils were built. As the science fair project proceeded, many questions regarding the accuracy of the measured lift coefficients were raised. How did the Wright's know that the measurements that they were making were accurate?

These questions lead to the discovery of a previously unknown procedure that the Wright Brothers used to calibrate their lift balance in 1901. This procedure, discovered in the archives of Wright State University and written by Orville Wright, describes an iterative calibration process that not only allowed the Wrights to adjust the lift balance so that accurate lift measurements were made, but also reduced errors introduced into the lift measurements due to the design of the lift balance itself.

We will describe this calibration procedure, and our exciting journey of discovery that took us from a junior high school science fair project to the presentation of our findings to three prominent Wright historians at the National Air and Space Museum in Washington, D.C.

Authors: **Rick Branch** is currently President and Principal Consultant of Dynamic Technology Solutions, Inc., an engineering consulting company specializing in software development related to noise and vibration analysis. **Dave Pinella**, is a registered Professional Engineer in the state of Ohio, and has worked at UGS (previously known as SDRC) for 22 years and is also co-owner of AeroLogic, a software and consulting company. **Joshua Branch** is currently a freshman at Saint Xavier High School in Cincinnati, Ohio.