

**AIAA ALBUQUERQUE SECTION TEAMS WITH THE NATIONAL MUSEUM OF NUCLEAR SCIENCE AND HISTORY FOR A FLIGHT SIMULATOR**

Don Nash, AIAA Albuquerque Section Corp Officer

The AIAA Albuquerque Section recently partnered with the National Museum of Nuclear Science and History (NMNSH) on the acquisition and integration of a fixed based/motion Flight Simulator (<http://www.mydreamflyer.com>). The simulator replicates an aircraft motion in pitch and roll.

During the 2012 School-to-World gathering for Mid-School students in Albuquerque, our AIAA section had our small aircraft wind tunnel and our laptop with a control stick and Micro Soft Flight Simulation software running to show students how to control an aircraft. Intel Corp was there with their two racecars that students could sit in and “drive the racecar via a monitor”—it was a big hit. Our AIAA members thought that a similar motion-based flight simulator would be a hit and provide a STEM experience; especially if students could actually sit in and obtain an orientation of real flight.

Shortly after the School-to-World gathering one of our AIAA members was attending a briefing by the NMNSH and they were looking for ideas for their upcoming “Dynamics of Flight” exhibit running from June 2013 through December 2013.

Our member started sorting out reasonability cost fixed based motion simulators and through contacts at the Greater St. Louis Air & Space Museum a potential simulator was found that met our above requirements. This was the “My Dream Flyer™.” Information on the simulator was presented to the NMNSH and they agreed to a partnering agreement. Our AIAA section contributed ~23% of the costs from our Section and Cat II funds. We agreed that our members would assemble and integrate the simulator and load the Micro Soft Flight Software and bring it to an operational state. A big “thank you” to the AIAA volunteers—the NMNSH has indicated that the simulator has been a big hit with museum visitors.

**Information on the Simulator**

“The Dreamflyer™ is a personal virtual-reality flight motion simulator designed to enhance the flight simulation experience. The pilot-lead and pilot-induced roll and pitch oscillation is interpreted by the brain to perceive the feeling of flight.”

“Dreamflyer™ captures the motion based on simple gravitational movements of the chair initiated by the user in response to the views on the screen. By using gravitational force to generate motions, the Dreamflyer™ has eliminated the need for hydraulics and motors, and associated costly maintenance.”

As described by the President of Flight Motion Simulators Inc. (FMS): “To your computer the Dreamflyer™ looks like a Saitek x-52 joystick, throttle and rudder pedals. FMS modified the joystick so the base is under the seat and moves with the seat but the handle end is mounted to a joystick metal rod. The seat moves as the



The simulator being demonstrated.

joystick handle is moved. It seems very realistic for smaller planes.”

- Roll: +/- 15 degrees
- Pitch: +/- 15 degrees
- User/Pilot max weight: 250 lbs.
- A Dell computer and 21 inch monitor is installed to display aircraft attitude and terrain

The partnering agreement states the simulator will remain at the NMNSH during their Dynamics of Flight Exhibit that runs until December 31, 2013, but after January 1, 2014 our AIAA Section will have access to it to take to various STEM activities within our Section. We will be looking at making the simulator more mobile so it can be transported to other localities. If you have any questions please contact: [denash1616@aol.com](mailto:denash1616@aol.com).



To submit articles to the *AIAA Bulletin*, contact your Section, Committee, Honors and Awards, Events, Precollege, or Student staff liaison. They will review and forward the information to the *AIAA Bulletin* Editor. See the AIAA Directory on page B1 for contact information.