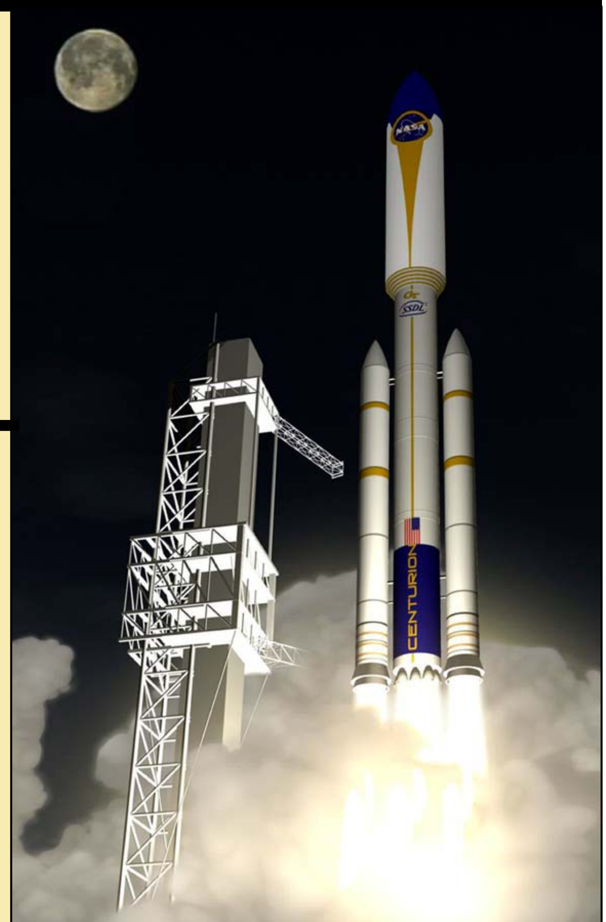
Georgia Institute of Technology

Co-Sponsored by
AIAA Space Systems and Space Transportation Technical Committees

First Annual Space Systems Engineering Conference
8-10 November 2005 • Atlanta, Georgia

Overview

Space systems engineering is a diverse field with important civilian and military applications. This three-day conference will bring together space systems engineering practitioners from military and civilian laboratories, industry and academia with a focus on systems engineering methodology, applications and education. The conference has been designed to include short courses, plenary speakers, technical sessions, and a social event. The plenary talks and technical sessions focus on the development of system engineering methods and their space applications, including the rapidly emerging use of simulation tools to permit the quick and inexpensive evaluation of a vast array of space systems alternatives. Student sessions are planned to showcase the work of both undergraduate and graduate students, as well as encourage new students to explore the space systems field. A student paper prize will be awarded.



Scope

Topics of particular interest for this conference include:

- Space Systems Engineering
  - Modeling and Simulation
  - Advanced Design Environments
  - Risk-based Design
  - Product Life Cycle Management
- Space Systems Engineering & Design Education
- Space Systems Applications
  - Spacecraft (Earth Satellites, Deep Space)
  - Space Transportation (Launch, In-space)
  - Space Based Radar, Communications, and Science Instruments
  - Ground Stations and Spaceports

Invited Plenary Speakers

- Maj Gen Robert Latiff, National Reconnaissance Office
  "Space Systems Engineering at NRO"
- Mr. Gentry Lee, Jet Propulsion Laboratory
  "Attributes of Outstanding Systems Engineers"
- Mr. Robert Manning, Jet Propulsion Laboratory
  "MER: Stealing Success from the Jaws of Failure"
- Mr. Stephen Sandford, NASA Langley Research Center
  "Engineering of Systems for Earth and Space Science"
- Dr. Douglas Stanley, Georgia Institute of Technology
  "NASA's Exploration Systems Architecture Study Results"

Short Courses

Two 6-hour short courses will be held on Tuesday. Attendance at these courses is included in the registration fee.

- Space Based Radar Systems
  Sam Piper, Georgia Tech Research Institute

  The Space-Based Radar (SBR) course includes theory, applications, and orbital considerations for both synthetic aperture radar (SAR) and moving target indication (MTI) modes. The course is ideal for engineers, scientists, technicians, and managers interested in space-based radar theory, applications, and tradeoffs. Familiarity with basic radar concepts is desirable. However, there will be an initial review of radar fundamentals. A notebook of the presentation slides will be provided.
- Aerospace Systems Engineering: Apollo Revisited
  Alan Wilhite and Douglas Stanley, Georgia Institute of Technology

  A brief overview of aerospace systems engineering decision processes will be provided. A case study of the Apollo systems engineering and architecture decision process will be performed based on historical documents and decision briefings from 1962. The process for Apollo will then be revisited using modern systems engineering methods. Two solutions will be developed using engineering and political perspectives from 1962 and today, to demonstrate the effect of advanced technology. Finally, the recently completed NASA Exploration Systems Architecture Study (ESAS) systems engineering and decision process will be presented to illustrate real-world applications and constraints.

Conference Schedule Overview

	Tuesday Nov 8	Wednesday Nov 9	Thursday Nov 10	Friday Nov 11
8 - 9:00	Short Course 1 / Short Course 2	Plenary Session		AIAA Space Systems Technical Committee Meeting
9 - 10:00			Student Session II / Earth Spacecraft and Sensors	
10 - 11:00				
11 - 12:00				
12 - 1:00	Lunch	Lunch	Lunch	
1 - 2:00	Short Course 1 / Short Course 2	Student Session I / Systems Analysis and Systems Engineering	Space Transportation / Deep Space Systems	
2 - 3:00				
3 - 4:00	Campus Tour			
4 - 5:00		Social		
5 - 6:00				

Tour Description

Departing from the Georgia Tech Hotel and Conference Center, the campus tour will provide conference attendees with a chance to see space systems facilities at Georgia Tech and the Georgia Tech Research Institute (GTRI). The campus tour will include visits to the Space Systems Design Lab, Spacecraft Dynamics and Control Lab, Planetary Atmospheric Lab, and the GTRI High Bay and Compact Range.

Space Systems Design Lab
www.ssdl.gatech.edu

Spacecraft Dynamics & Control Lab
www.ae.gatech.edu/labs/dcsl/

Georgia Tech Research Institute
www.gtri.gatech.edu

Organizing Committee

- Robert Braun
  Conference Chair
  School of Aerospace Engineering
  Georgia Institute of Technology
- Norman Anderson
  Air Force Research Laboratory
- Samuel Blankenship
  Georgia Tech Research Institute
- John Christian
  School of Aerospace Engineering
  Georgia Institute of Technology
- John Cox
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- John Olds
  School of Aerospace Engineering
  Georgia Institute of Technology
- Samuel Piper
  Georgia Tech Research Institute
- David Spencer
  NASA Jet Propulsion Laboratory
- Duane Tate
  Georgia Tech Research Institute
- Alan Wilhite
  National Institute of Aerospace
  Georgia Institute of Technology

Global Learning & Conference Center

84 5th Street NW
Atlanta, GA 30308

The Global Learning and Conference Center is a state-of-the-art facility located in the heart of Midtown Atlanta. The center is easily accessible from I-75/I-85, minutes away from Hartsfield-Jackson International Airport, and accessible from the Metropolitan Atlanta Rapid Transit Authority (MARTA).

REGISTRATION

The registration fee for this conference is $520, with reductions available for speakers, students and early registrants. Advanced registration is required. To register online, visit:

http://pweb.ae.gatech.edu/labs/ssdl/SSEC.htm

There is no additional charge for the Tuesday events.

A block of rooms has been reserved at a reduced rate for conference participants at the Renaissance Hotel (590 West Peachtree St., Atlanta, GA 30308; 404-881-6000). Hotel reservation must be made by October 8 to take advantage of this rate. Additional hotels in the area include the Georgia Tech Hotel and Conference Center (800 Spring Street NW, Atlanta, GA 30308; 404-347-9440) and Wyndham Midtown Atlanta (125 10th Street NW, Atlanta, GA 30309; 404-873-4800). Georgia Tech rates are available at each of these hotels.