

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS OFFICE OF AEROSPACE RESEARCH
ARLINGTON, VIRGINIA 22209



OFFICE OF THE
COMMANDER

Adm - 11.1

September 17, 1968

Mr. Carl E. Duckett
Deputy Director
Science and Technology
Central Intelligence Agency
2430 E Street, N. W.
Washington, D. C. 20505

Dear Mr. Duckett:

I wish to extend to you my personal invitation to attend the 1968 Air Force Science and Engineering Symposium. The Symposium is jointly sponsored by the Office of Aerospace Research and the Air Force Systems Command for the purpose of demonstrating the capability of, and giving recognition to, Air Force scientists and engineers.

This year the Symposium will be held at the Air Force Academy on 30, 31 October and 1 November. As in previous years, the presentations will consist of papers representing the scope and depth of Air Force work in the fields of research and development.

I have enclosed a preliminary program, some general information, and housing and security forms.

I believe you will find the meeting of interest and hope you will be able to attend. If you desire any additional information please contact my project officer, Major R.H. Hartke, office symbol RROSS, phone OX4-5628.

Sincerely

Leo A. Kiley

LEO A. KILEY
Brigadier General, USAF
Commander

USAF review(s) completed.

1968 AIR FORCE SCIENCE and ENGINEERING SYMPOSIUM

sponsored by
THE OFFICE OF AEROSPACE RESEARCH
and
THE AIR FORCE SYSTEMS COMMAND



PRELIMINARY PROGRAM

PRELIMINARY PROGRAM FOR THE
1968 AIR FORCE SCIENCE AND ENGINEERING SYMPOSIUM

WEDNESDAY, 30 OCTOBER 1968

0730 - 0900	REGISTRATION	Lobby of Auditorium F-1
0900 - 1000	GENERAL SESSION	
	Call to Order	
	Brig Gen Leo A. Kiley	
	Commander, Office of Aerospace Research	
0910	INVOCATION	
	Col Roy M. Terry	
	Command Chaplain, USAF Academy	
0915	WELCOME	
	Lieutenant General Thomas S. Moorman	
	Superintendent, USAF Academy	
0920	INTRODUCTION OF KEYNOTE SPEAKER	
	General James Ferguson	
	Commander, Air Force Systems Command	
0930	KEYNOTE ADDRESS	
	Dr Donald F. Hornig, Chairman	
	President's Science Advisory Committee	
1000	COFFEE BREAK	
1015 - 1230	HONOR PRESENTATIONS - (UNCLASSIFIED)	
	SESSION CHAIRMAN - Hon Alexander Flax	
	Asst Secretary for R&D, USAF	
1015	Science Achievement Presentation	
	(#1 Air Force Association Science Award)	
1040	Engineering Achievement Presentation	
	(#2 Air Force Association Engineering Award)	
1105	Technical Management Achievement Presentation	
	(#1 Air Force Association Technical Management Award)	

1130 - 1145 BREAK

1145 Air Force Systems Command Film Highlights

1205 Office of Aerospace Research Film Highlights

1230- 1400 LUNCH - OFFICERS OPEN MESS

1400 - 1530 TECHNICAL SESSIONS
 Session I-A Medicine (U)
 Session I-B Environmental Test Facilities (U)
 Session I-C Electronic Warfare (S)

1530 -1545 BREAK

1545 -1715 TECHNICAL SESSIONS
 Session II-A Materials Research (U)
 Session II-B Space (U)
 Session II-C Weapons & Operations (S)

1730 BUSES DEPART FOR OFFICERS OPEN MESS & MOTELS

1930 BUSES DEPART OFFICERS OPEN MESS

2100 BUSES DEPART OFFICERS OPEN MESS

THURSDAY, 31 OCTOBER 1968

0900 GENERAL SESSION - Auditorium H-2

 Chairman: Irving R. Mirman
 Special Asst. to the Commander, AFSC

 Invited Presentation: Gunship II (S)
 A study of in-house response to a unique
 operational requirement. (ASD)

0930 - 1200 Tour of USAF Academy

1200 - 1400 LUNCH

1400 - 1530 TECHNICAL SESSIONS
 Session III-A Solid State Devices (U)
 Session III-B F-111A Propulsion & Avionics (C)
 Session III-C Technical Management (S)

1530 - 1545 BREAK

1545 - 1715 TECHNICAL SESSIONS
 Session IV-A Applications of BioMedicine (U)
 Session IV-B Avionics (S)
 Session IV-C Infra Red Developments (S)

1730 BUSES DEPART FOR MOTELS
1845 BUSES DEPART MOTEL FOR OFFICERS OPEN MESS
1900 SOCIAL HOUR - OFFICERS OPEN MESS
2000 AWARDS BANQUET (INFORMAL)

TOASTMASTER
Brig Gen Raymond A. Gilbert
Director of Laboratories, AFSC

PRESENTATION OF AWARDS
Lieutenant General Joseph R. Holzapple
Deputy Chief of Staff (R&D), Hq USAF

2100 ADDRESS
Brig Gen Robin Olds
Commandant of Cadets, USAF Academy

2200 BUSES DEPART FOR MOTELS

FRIDAY, 1 NOVEMBER 1968

0900 - 1030 TECHNICAL SESSIONS
Session V-A Solid State Physics (U)
Session V-B Environmental Sciences (C)
Session V-C Electro-optical Instrumentation (S)

1030 - 1045 COFFEE BREAK

1045 - 1200 GENERAL SESSION - Honor Presentations

Chairman: Dr John C. Fisher
Air Force Chief Scientist

1. General B.A. Schriever Award Presentation
(Most Outstanding Technical Achievement by
Junior Officer)
2. Patricia Kayes Glass Award Presentation
(Most Outstanding Technical Accomplishment
by a Woman)

1200 CLOSING REMARKS

Brig Gen Leo A. Kiley
Commander, Office of Aerospace Research

TECHNICAL SESSIONS

SESSION I WEDNESDAY - 1400 - 1530

Session I-A: Medicine (U)

Chairman: Dr Roland B. Mitchell, Chief, Biological Sciences Div, AMD, AFSC

"The Production of Restricted Lesions in the Central Nervous System by Chemical Means" (U)

Capt Donald F. Buxton, USAF AF Aeromedical Research Laboratory, AMD, AFSC

"Development of Hyperbaric Oxygen Treatment for Altitude Decompression Sickness" (U)

Lt Col Robert G. McIver, USAF, MC Hq, Aerospace Medical Division, AFSC

"Accelerated Methods and Devices for Diagnosis and Treatment of Infectious Diseases" (U)

Walter M. Sellers, School of Aerospace Medicine, AMD, AFSC

Session I-B: Environmental Test Facilities (U)

Chairman: Don R. Eastman, Technical Advisor, AEDC

"The Design of an MHD Accelerator for Creating Very High Energy Aerodynamic Test Flows" (U)

Capt E.E Goins, Arnold Engineer Development Center, AFSC

"Rare Earth-Zirconia Storage Heaters Providing Flight Simulation for Air Breathing Propulsion Systems." (U)

Capt L.L. Fehrenbacher, AF Aerospace Research Laboratory, OAR

"Laboratory Simulation of the Service Noise Environment for Sonic Fatigue Qualification Testing of Aircraft Structures" (U)

Otto F. Maurer, AF Flight Dynamics Laboratories

Session I-C: Electronic Warfare (S)

Chairman: Thomas H. Dalehite, Chief Scientist, Armament Development & Test Center, AFSC

"A Selective Communications Disruptor" (S)

Marvin R. Clinch, Rome Air Development Center, AFSC, Vincent J. Nardoza, Rome Air Development Center, AFSC

"A Method of Degrading Track-on-Jam Capability of Surface-to-Air Missile Systems" (S)

Ingwald O. Haugen, ADTC, AFSC

"Prediction of Radar/Jamming Effectiveness" (S)

Capt Edward B. Breck, ADTC, AFSC

Presented by 2/Lieutenant Thomas J. Faber

SESSION II - WEDNESDAY - 1545 - 1715

Session II-A: Materials Research (U)

Chairman: Col Gage H. Crocker, Commander, Frank J. Seiler Rsch Lab, OAR

"Studies in Organometallic Chemistry - A Novel Synthesis of Ruthenocenes" (U)
Lt George J. Gauthier, Frank J. Seiler Research Laboratory, OAR

"Development of Nitroso Rubber for Improved Performance of Missile System" (U)
J.K. Sieron, AF Materials Laboratory, AFSC

"Fiber Technology - Spinning and Drawing of a Fused-Ring Polymer" (U)
Walter H. Gloor, AF Materials Laboratory, AFSC

Session II-B: Space (U)

Chairman: Dr H.J.P. von Ohain, Chief Scientist, Aerospace Reserach Laboratories
OAR

"Electron Density Reduction in the Re-Entry Plasma Sheath." (U)
D. Jacavano, AF Cambridge Research Labs, OAR

"Vela IV "Lid" Experiment - Space Evaluation of Lithium Diffused Solar Cells" (U)
Capt A.H. Hayden, USAF, Space and Missile Systems Organization, AFSC

"Photoelectric Measurement of Specular Glints from Orbiting Spacecraft" (U)
R.C. Vanderburgh, AF Aerospace Research Laboratories, OAR

Session II-C: Weapons and Operations (S)

Chairman: Col M.D. Sprinkel, Commander, Office of Research Analyses, OAR

"Minuteman Ordnance Reliability and Service Life Program" (U)
L. K. Norseth, Ogden Air Material Area, Air Force Logistics Command

"A Computer Optimization Study of a Three-Dimensional Model of an Engagement
Between a Surface-toAir Missile and a Tactical Aircraft" (S)
Maj J.F. Schaefer, Frank J. Seiler Rsch Lab, OAR, 1/Lt M. Ciletti, Frank
J. Seiler Rsch Lab, OAR, 1/Lt G. Cook, Frank J. Seiler Rsch Lab, OAR, Capt
D.H. deDoes, Frank J. Seiler Rsch Lab, OAR

"A Strategic Analysis of Ballistic Missile Defense Systems" (U)
R.A. Anderson Office of Research Analyses, OAR, C.A. Feuchter, Office of
Research Analyses, OAR, Lt Col H.O. Hall, Office of Research Analyses, OAR,
Dr B.J. Manz, Office of Research Analyses, OAR

SESSION III THURSDAY - 1400 - 1530

Session III-A: Solid State Devices (U)

Chairman: Dr William J. Price, Executive Director, AFOSR

"Research on Thin Film Schottky Barrier and its Application in Specific Devices" (U)
Dr Fritz Schwermeyer, AF Avionics Laboratory, AFSC

"Stress at the Si-SiO₂ Interface and its Relationship to Interface States and Metallization Problems in Silicon Devices" (U)
Clyde H. Lane, Rome Air Development Center, AFSC

"Comparison of Radiation Tolerance of Transistor Types" (U)
R. Buchanan, AF Cambridge Research Labs, OAR, R. Dolan, AF Cambridge Rsch Labs, OAR, W. Shedd, AF Cambridge Research Labs, OAR

Session III-B: F-111A Propulsion and Avionics (C)

Chairman: Dr John Keto, Chief Scientist, Aeronautical Systems Division, AFSC

"F-111A Inlet Redesign to Achieve Engine/Inlet Capability" (C)
F.T. Rall, Jr., Aeronautical Systems Div, AFSC. Dr Demetruis Zonars, AFFDL, AFSC

"Integration of Attack and Terrain Following Radars in F-111A Aircraft"
Sidney Tomberg, Aeronautical Systems Division, AFSC

Session III-C: Technical Management (S)

Chairman: W. Lee Coleman, Deputy Assistant, DCS/Systems, Hq AFSC

"Methodology and Organization for Nuclear Survivability/Vulnerability Analyses" (C)
Edward Baklini, AF Special Weapons Center, AFSC

"Methodology for the Analysis of Foreign Aerospace Research, Development, Test and Production Resources Investments" (S)
Charles A. Mangio, Foreign Technology Division, AFSC

"Methodology for Urban/Missile Defense Trade-Off Analyses" (S)
Col H.G. Hoover, USAF, Maj J.P. Ditz, USAF, Maj J.G. Daye, USAF, DSC/Development Plans, Hq AFSC

SESSION IV THURSDAY - 1545 - 1715

Session IV-A: Applications of BioMedicine (U)

Chairman: Col George Schaefer, Commander, School of Aerospace Medicine, AMD, AFSC

"Physiological Signal Telemetry Systems and Television Data Display Techniques" (U)
Adolf R. Marko, Aerospace Medical Research Labs, AMD, AFSC

"Fire Protection in Oxygen Enriched Atmosphere - Protection and Extinguishment" (U)
Capt Donald I. Carter, USAF, Hq Aerospace Medical Division, AFSC

"In-House Contributions to Design and Construction of Devices for Biomedical Monitoring, Training and Experimental Support" (U)
Master Sergeant Henry B. Whitmore, USAF, AF School of Aerospace Medicine, AMD, AFSC

Session IV-B: Avionics (S)

Chairman: Peter R. Murray, Deputy Director of Laboratories, AFSC

"Performance Evaluation of Contrast Trackers" (C)
Capt D.W. Welp, AF Missile Development Center, AFSC. Capt P.G. Kaminski, AF Missile Dev Center, AFSC

"An Investigation and Design of Improved Guidance Schemes for Air-to-Air Missiles" (U)
Lt R.E. Morgan, Air Force Academy

"Airborne Magawatt Power Generation by MHD and Some Applications"
R.R. Barthelmy, AF Aero Propulsion Lab, AFSC, E.T. Mahefky, AF Aero Propulsion Lab, AFSC, J.D. Reams, AF Aero Propulsion Lab, AFSC

"A new Method for Determining Gyroscope Short Term Drift Characteristics" (U)
Judith G. Koestler, AF Missile Development Center, AFSC

Session IV-C: Infrared Developments (S)

Chairman: Col P.G. Atkinson, Jr., Commander, Aerospace Research Labs, OAR

"A Study of Infrared Radiation and its Suppression from the Exhaust Plumes of Jet Aircraft During Afterburner Operations" (S)
/Lt M.E. Morrison, AF Aerospace Research Labs, OAR, K. Scheller, AF Aerospace Research Labs, OAR

"Gallium Arsenide Lasers: A New Dimension in Night Strip Photography" (C)
Herman Fledel, AF Avionics Laboratory, AFSC

"Electronic Target Enhancement in IR Reconnaissance" (C)
Lt W.E. Alexander, AF Cambridge Research Laboratories, OAR

SESSION V FRIDAY - 0900 - 1030

Session V-A: Solid State Physics (U)

Chairman: Dr John N. Howard, Chief Scientist, AFCRL, OAR

"Probing the Electronic Qualities of Crystals by Pressure" (U)
D.W. Langer, AF Aerospace Research Labs, OAR

"Energy Decay Observations in Ruby Lasers" (U)
C.M. Stickley, AF Cambridge Rsch Labs, OAR, E.E. Hoell, AF Cambridge Rsch Labs, OAR, C.C. Gallagher, AF Cambridge Rsch Labs, OAR, R.A. Bradbury, AF Cambridge Research Labs, OAR

"Modern Thermal-Imaging Techniques for High Temperature Research" (U)
W.W. Field, AF Cambridge Research Labs, OAR, R.W. Wagner, AF Cambridge Research Labs, OAR

Session V-B: Environmental Sciences (C)

Chairman: Col Dale J. Flinders, Commander, AFCRL, OAR

"Electrical Structure of Aerospace" (U)
Rita C. Sagalyn, AF Cambridge Research Laboratories, OAR
Simultaneous Rada

"Simultaneous Radar, Aircraft & Meteorological Investigations of Clear Air Turbulence" (U)

K.M. Glover, AF Cambridge Rsch Labs, OAR, R.J. Boucher, AF Cambridge Rsch Labs, OAR, H. Ottersten, AF Cambridge Rsch Labs, OAR, K. R. Hardy, AF Cambridge Rsch Labs, OAR

"The Effect of Gravity Anomalies in the Launch Region on Minuteman Trajectories"(C)
Neil J. Simmons, Hq, Aeronautical Chart & Information Center

Session V-C: Electro-Optical Instrumentation (S)

Chairman: Stanley Radom, Technical Director, AF Western Test Range, AFSC

"Ballistic Impact Flash Measurement" (U)
Capt J.B. Abernathy, AF Institute of Technology, Maj Wm Goldbert, AF Institute of Technology

"Measurement of Spectral Shift of High Energy Ruby Lasers with a Pulsed Spectrometer" (U)
Harold D. Newby, AF Eastern Test Range, AFSC

"Long Range Electro-Optical Photography Applied to Ballistic Missile Operations" (S)
Kingston A. George, AF Western Test Range, AFSC

GENERAL INFORMATION

1968 AIR FORCE SCIENCE & ENGINEERING SYMPOSIUM

1. This year's symposium will be held at the United States Air Force Academy. The Academy is located near the Rampart Range of the Rockies, about 10 miles north of Colorado Springs and approximately 55 miles south of Denver. The city of Colorado Springs is readily accessible by auto, bus, rail and airline service from Denver. Military aircraft facilities are available at Peterson Field in Colorado Springs.

2. As in the past, the Science and Engineering Symposium will consist of presentations of outstanding Air Force papers in the fields of Science, Engineering and Technical Management. This information packet including the preliminary program, along with registration, security and housing information is the initial announcement of the program content and the schedule. Additional information can be obtained by contacting the OAR Project Officer at the following address:

Major R. Hartke
Hq OAR (RROSS)
1400 Wilson Blvd
Arlington, Va. 22209

3. Housing: VOQ facilities at the Air Force Academy are very limited and it is anticipated that they will fill rapidly. To avoid tedious preparation of non-availability slips military attendees should have the statement "Utilization of Government Quarters would be Impractical" typed on their orders. Arrangements have been made to reserve rooms at the Ramada Inn and the Palmer House motels. Both motels are on the outskirts of Colorado Springs convenient to most city services. Speakers and guests should state their room and location preference on the space provided on the housing preference form.

4. Area Transportation: Transportation from the commercial air terminal to the motels will not be provided. An airport limousine and taxi service is available for this purpose. Arrivals travelling on military aircraft will be provided bus service to the motel area. Buses will be provided for attendees from the motels to the symposium and returning in the evening. Because of construction on the Academy grounds, parking is extremely limited. Persons using rental cars in the Colorado Springs area should plan to leave them at the motel and ride the bus to and from symposium sessions.

5. Meals: Breakfast may be obtained at the motels (or for VOQ residents at the Officers Open Mess). Lunches on 30 and 31 October will be at the Officers Open Mess. No special lunch program is planned for 1 Nov., however bus transportation to the Officers Open Mess will be available.

Evening meals may be obtained at the Officers Open Mess, the motels, or in the Colorado Springs area. The Awards Banquet is scheduled for Thursday evening, 31 Oct. A social hour, with a pay-as-you-go bar, is planned for the hour preceeding the banquet. Please indicate, on the housing form, banquet and social hour attendance.

6. Clothing: The weather at the Air Force Academy is likely to be changeable in late October. Residents advise a lightweight suit and a raincoat or water repellant topcoat. Military personnel should wear the lightweight Class A uniform. (Fairchild Hall is in the Cadet area and Class A uniforms are required when the cadets are in residence).

Dress for the awards banquet will be a business suit for civilians and the blue uniform for the Air Force personnel.

7. Security: Portions of the symposium will be classified both CONFIDENTIAL and SECRET. All persons planning to attend the symposium should forward the attached security form to OAR prior to 15 Oct 68.

Speakers desiring to send classified presentation material to the Academy should send it through channels to Lt Col Harold Beck, FJSRL, USAF Academy, Colorado 80840. At least two weeks should be allowed for handling, and a letter of explanation should accompany the package. Material should be clearly labeled "1968 Science & Engineering Symposium - Hold for (Sender)." This material may be claimed by contacting the information desk at the symposium.

8. Registration: Registration for the symposium will be on 30 Oct 68 between 0730 - 0900 hours. The enclosed personal registration information should be completed and returned to Hq OAR in the enclosed envelope. This will facilitate registration at the Academy in that attendees need only check in.

A security check of attendees will take place each morning of the symposium.

9. Football: For attendees who are interested in sports, the Air Force Academy football team is playing North Carolina on 2 Nov, 1968. Tickets will be available at the Academy on 30 Oct, however, motel reservations should be made in conjunction with the symposium. Indicate on the housing form if you desire to stay until 2 Nov for the football game.

10. If you plan to attend, please have the enclosed forms filled out and mailed to Hq OAR by 30 Sept.

These forms will serve to identify you during your visit to the Academy and along with housing information, will be maintained in the Command Post or Information Center.

Approved For Release 2004/12/15 : CIA-RDP71R00510A000200020012-9

SECURITY CLEARANCE DATA

for the

1968 AIR FORCE SCIENCE & ENGINEERING SYMPOSIUM

30 October to 1 November 1968

SPONSORED BY: Office of Aerospace Research and Air Force Systems Command, Department of the Air Force

LOCATION: USAF Academy, Colorado Springs, Colorado

Part I: To be completed by applicant.

NAME (LAST, FIRST, MIDDLE)

SIGNATURE

TITLE & POSITION (If military include grade and service number)

Part II: To be completed by applicant's Security Officer - NOT applicant.

A. PERSONAL CLEARANCE

PLACE OF BIRTH

DATE OF BIRTH

CLEARANCE LEVEL

ISSUED BY

DATE

CITIZENSHIP

ALIEN REG. NO. (For immigrant aliens only)

B. FACILITY CLEARANCE ★

CLEARANCE LEVEL

ISSUED BY

DATE

C. OFFICIAL CLASSIFIED MAIL ADDRESS

ORGANIZATION

BOX STREET & NUMBER

CITY

STATE

ZIP CODE

D. I CERTIFY THAT THE ABOVE INFORMATION IS CORRECT

SECURITY OFFICER (Type or Print)

SIGNATURE

DATE

TELEPHONE NUMBER (Include Area Code or Autovon No.)

Part III: NEED TO KNOW - MUST BE COMPLETED BY GOV'T PROJECT OR CONTRACTING OFFICER ★

APPLICABLE CONTRACT/GRANT NO.

I CERTIFY THAT THE APPLICANT'S ACCESS TO THE INFORMATION TO BE DISCLOSED AT THIS CONFERENCE IS NECESSARY AND IS IN THE INTEREST OF NATIONAL DEFENSE.

NAME OF PROJECT OR CONTRACTING ACTIVITY
(Print or Type)

NAME OF AUTHORIZED OFFICIAL (Typed)

SIGNATURE

DATE

★NOT REQUIRED FOR GOVERNMENT EMPLOYEES (INCLUDING MILITARY)

NOTE: THE APPLICANT MAY NOT BE ADMITTED TO THE CONFERENCE IF THIS FORM, PROPERLY COMPLETED, IS NOT RECEIVED AT THE ADDRESS GIVEN BELOW BY 15 OCTOBER 1968.

RETURN THIS FORM TO: Office of Aerospace Research (RRI)
1400 Wilson Boulevard
Arlington, Va 22209

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PERSONAL DATA

NAME: _____

RANK OR GRADE & TITLE: _____

ORGANIZATION: _____

ADDRESS: _____

TELEPHONE: _____

HOUSING ACCOMMODATION PREFERENCE

Return completed form to Maj R.H. Hartke in enclosed envelope

Indicate choice of room (rates are approximate)

VOQ Air Force Academy

Motel	Single Room	\$10.00
	Shared Double Room	\$14.00

Please circle dates required:

<u>October</u>				<u>November</u>		
28	29	30	31	1	2	3

Housing reservations will be made on a first-come, first-serve basis through Hq OAR. Your confirmed reservations will be returned as soon as possible.

ADDITIONAL DATA

(indicate choice by check or circle)

Probable mode of transportation
to Colorado Springs

Commercial

Military

Attendance at Social Hour

YES

NO

" " " Banquet

YES

NO

" " " Football Game

YES

NO