

# Horizons

Houston, Texas

May 1995

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## Chairman's Corner

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George Nield  
Chairman

By now you should have received your ballot for our annual AIAA Houston Section election. If you haven't already done so, please take a few minutes right now and fill it out. If you have access to the Johnson Space Center internal mail system, you can put your ballot in a "Holey Joe" and send it to me at JSC/MT2. If not, just fold it up with our address showing and stick a stamp on it, and send it to the Section post office box. Ballots need to be postmarked by May 15, 1995 to be counted.

At present, the Houston Section has almost 1,000 members. Based on results from past years, there is a good chance that only about ten percent of that number will actually vote. I recognize that not every member has the time to be an active participant in all of our Section activities. However, this year's Nominating Committee has been able to round up some truly outstanding people who have volunteered to take the time to serve our Section as officers and councillors. The least we can do in return is to take the time to read through the information on the candidates, make an informed set of decisions, and send in our ballots. In an election like this one, every vote really does make a difference, so please don't let yours go to waste!

One of our new initiatives this year has been to arrange to get computer data disks from AIAA Headquarters on a regular basis which contain information on our members. This has proven very valuable to the Section leadership in planning our activities and in helping us to better understand our membership base. In previous columns, I have discussed both the primary technical interests of our members and their organizational affiliations. This month I'd like to share with you a breakdown of our membership by age bracket. Not everyone who

sends in a membership application or renewal takes the time to fill in their birth date (or else they consciously choose to leave that section of the form blank!). In addition, there could be some typos or other errors in the database. However, based on the information we have, here is how the numbers look:

Age Group	Number of Members	Percentage
<25	20	2.3
25-35	215	24.3
35-45	205	23.2
45-55	194	21.9
55-65	182	20.6
65-75	58	6.6
>75	10	1.1

So, there you have it. Do the figures surprise you? Frankly, I did not expect such an even distribution all the way from age 25 to age 65. I'm also a little disappointed at the few folks we have under age 25. It's true that "fresh out of college" job opportunities haven't been too common here lately, but I know there are a lot of young engineers in the area who could benefit from the kind of interaction and experience that professional societies like AIAA can offer. If you know or work with a young professional, why not invite him or her to join? Young members have a special rate on dues, and the Section offers discounts at our monthly dinner meetings as well.

As always, if you have any questions, comments, complaints, or suggestions, I'd love to hear from you. Give me a call at (713) 483-1364, or send an e-mail note to [gfield@jscprofs.nasa.gov](mailto:gfield@jscprofs.nasa.gov).

And don't forget to vote!



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## **Welcome New Members!**

**Dr. George C. Nield**  
**Chairman**

We are pleased to welcome three new members to the AIAA Houston Section:

Dennis K. Anderson, Senior Systems Engineer for Boeing; Vasantha K. Kumar, Senior Researcher for Krug Life Sciences; and Charles H. Tarrant, Senior Systems Engineer for Loral. Based on

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requests by several individuals for membership applications, we expect to be seeing several additional new members in the next couple of months. If you would like to know more about any of our local activities, please give one of our officers a call. We'd be happy to talk to you about upcoming events and how you can get more involved in Section events. H

## *Report from our Student Branch*

**Joel Korkowski**  
**Texas A&M Student Branch**

Hello! I just thought I would fill you in a bit about our activities up here in College Station. On April 18 we will be making a field trip to Space Center Houston and JSC. There are about fifteen to twenty of us that will be down to Space Center Houston in the morning, hopefully meeting some old Aggies for lunch, and touring the Robotics Lab in the afternoon. We are looking forward to it.

On Thursday, April 20, we are planning another general meeting. Dr. Ward is going to give a presentation on F-16 Thrust Vectoring (since many were not able to see the presentation at the Student Paper Conference) and we will hold new officer elections also.

Then next Tuesday, April 25th, we will hold our annual Spring Banquet. Our guest speaker will be Dr. Leroy "Skip" Fletcher, the President-Elect of AIAA, speaking on "Aerospace Engineering—The Dilemma and the Opportunity."

I would like to say thank you for all of your work and encouragement. It always seems that there was a lot more we could have done together, but time is always the limiting factor. Though I will not be an officer next year, I do plan to help the officer corps any way I can, and I also plan on participating as a professional member for years to come. You have an excellent Section down in Houston, and I thank you again for your help. H

## 25 Years Ago This Month

**David S. Portree**  
**History Committee**

In May 1970, NASA was recovering from the Apollo 13 accident and coping with budget cuts.

May 5 - Apollo 13 astronauts visited the Grumman Aerospace Corporation plant in Bethpage, New York, which built the Lunar Module Aquarius, their lifeboat after the Command Module Odyssey suffered an oxygen tank explosion and lost power. Commander Jim Lovell, Command Module Pilot Jack Swigert, and Lunar Module Pilot Fred Haise thanked the 15,000 workers who built the machine which let them get home.


May 7 - During debate in the U.S. Senate, Howard Cannon (D-Nev.), stated that Federal space funding decreased by 10.5% over the years 1969-1971—"the greatest decrease of any item in the entire Federal Budget."

May 10 - Writing in New York Times Magazine, Dr. Robert Jastrow, NASA Institute for Space Studies, stated that soon after the year 2000, "a pioneering band of men—and women—will be living on Mars. Later, the spacefarers will constitute a new species, evolved out of Homo Sapiens, but linked to the home planet only by sentiment."

May 19 - NASA Administrator Tom Paine stated that cuts to NASA's \$3.33 billion budget request would result in disruption of 20% of the NASA work force.

May 26 - Speaking to the Young Communist League in Moscow, Cosmonaut Alexei Yeliseyev said that "Every country follows its own path in space exploration. The main trend in Soviet space research is the construction of orbital stations that can make long flights. The United States in recent years concentrated its efforts on putting a man on the moon. In the future these paths will join into a wide road of mankind far into space."

May 27 - The Apollo 13 Review Board announced that a special detanking procedure on the pad in Florida caused major wiring damage in the

No. 2 oxygen tank aboard Apollo 13 Command and Service Module Odyssey. 170,000 miles from Earth, arcing short circuits ignited tank insulation, which heated and overpressurized oxygen in the tank, producing the explosion which scrubbed the planned third lunar landing on April 13, 1970. 


## Events

### **Science Engineering Fair of Houston**

**Susan Cisneros Vascoe**


On March 30, 1995, the Houston Section served as a Special Awarding Agency in the Science and Engineering Fair of Houston. George Nield, Zafar Taqvi, Marv White, Lou Livingston and Susan Cisneros Vascoe participated as judges.

First place plaques were awarded for the Junior (7th and 8th grades), Ninth, and Senior (10th, 11th and 12th grades) Divisions. Entrants were judged for creativity and originality, project design, knowledge and understanding of scientific and engineering principles, and project execution.

The winner from the Junior Division was Robert Mallery, whose project was entitled "A Problem with a Twist." The Ninth Grade Division award went to Thomas Arnold, who did a project entitled "Photoelectric Photometry of Galactic Clusters." The Senior Division Winner was Travis Kelley whose aerospace project was entitled "Optical Detection of a Flame-out." 

### **CLCTS Awards Banquet Planned**

**Dr. George C. Nield**  
**Chairman**

The Clear Lake Council of Technical Societies will have its annual awards banquet on May 26, 1995, at the Gilruth Center. Among the awards to be presented are Technical Person of the Year, Technical Administrator of the Year, and Technical Educator of the Year. Each member society is allowed to nominate a candidate for each of these awards. 

## **Student Paper Competition A Big Success**

**Tom Mulder**  
**Chairman, College/Student Paper Competition**


The Houston Section and the Texas A&M Student Chapter hosted 52 students and faculty members at the 43rd Annual AIAA Region IV Student Paper Competition. This year's event was held April 6-8 at the Ramada Inn in College Station. Twenty-one student papers were reviewed prior to the competition and 19 oral presentations were evaluated at the conference. Students walked away with 15 certificates and \$2,080 in prize money. First place winners will also compete at the national competition in Reno, Nevada, next January.

Undergraduate winners were: first, Kenneth Christensen, Univ. of New Mexico; second, Steven Stone, Texas A&M Univ.; third (tie), Alex Hudspeth, Texas A&M Univ., and Vladimir Sierra, Univ. of Texas (Austin).

Graduate winners were: first, Todd O'Neill, Texas A&M Univ.; second, Brian Tipton, Univ. of Oklahoma; third (tie), Brian Baltz, Univ. of New Mexico, Jonathan Bishop, Univ. of Oklahoma, and Timothy Luna, Univ. of New Mexico.

Students, faculty and judges were treated to a lunchtime presentation by an F-16 test pilot, Joe Sweeney, from Lockheed-Ft. Worth. Dr. Don Ward, Interim Head of the Texas A&M Aerospace Engineering Department, provided an in-depth and very interesting tour of research aircraft, wind tunnels, laboratory equipment, student-developed aircraft simulations, and other facilities.

Several Texas A&M students, including Guy Yelverton III, solved many conference logistics problems as they arose. Credit is due to 29 individuals from the JSC community who performed technical evaluations of the papers, six judges from Houston who drove to College Station to review oral presentations, and to Mike Begley for providing considerable support during the preparation phase. Credit also goes to twelve contributing companies, including Dynacs and Lockheed in Houston, for making

the conference affordable to many college students who otherwise could not have attended. 

## **Space Life Sciences: Bringing Space Benefits Down To Earth!**


**Reg Machell**

Some 525 engineers and scientists attended the first annual NASA/AIAA Life Sciences and Space Medicine Conference held in Houston on April 3 - 5, 1995. The theme of the conference was "Bringing Space Benefits Down to Earth." Dr. Carolyn Huntoon, Director of the NASA Johnson Space Center, served as General Chairperson.

On the first morning, Dr. Huntoon was joined by Senator Kay Bailey Hutchison, who reiterated her strong support for the human space program and the scientific and technological stimulus it provides. She pointed out that funds spent on space science and technology contribute to the advancement of our national economy and technological leadership, thereby benefiting citizens at all economic levels.

Next, NASA Administrator, Mr. Dan Goldin, outlined his view of the future for life sciences and space medicine. He described his plans for an international institute for science and technology, and he emphasized that international cooperation is already working effectively in the life sciences disciplines.

Plenary sessions were held each morning, including presentations by Dr. Michael DeBakey of Baylor, Major General George Anderson representing the Department of Defense, NASA Associate Administrator Dr. Harry Holloway, and his deputy, Dr. Arnauld Nicogossian.

Parallel technical sessions were held in the afternoon, covering many life sciences disciplines. Topics included environmental control and life support, regulatory physiology, gravitational biology, cardiovascular physiology, telemedicine, applications of physical science to life sciences issues, spinoffs from Spacelab life sciences missions and many more. At the Awards Banquet on April 4th, Dr. Fred Guedry was presented the Jeffries Medical Research Award for his research in neurovestibular physiology. 

## WAR '95

Dr. Zafar Taqvi  
Automation & Robotics TC Chairman

On a display table, there were six mechanical bugs trading paths in the same way as real creatures in the biological world, and there were no remote controls. Some of us picked up the little critters and held them in our hands, and they were struggling to free themselves in the same way a real bug would do. This all happened at the Center for Advanced Space Studies; the occasion was the Eleventh Annual Workshop on Automation and Robotics (WAR '95), sponsored by the Houston Section's Automation and Robotics Technical Committee and the JSC Automation, Robotics and Simulation Division. This year's theme for the popular workshop was "Self-Organizing Robots." The local organizing committee was thrilled by the presence of four outstanding speakers, arranged by the AIAA Space Robotics National TC.


The four speakers were:

Dr. Gerald P. Roston, Research Engineer, Cybernet System Corp., "A Genetic Methodology for Configuration Design."

Dr. Mark W. Tilden, Robobiologist, Los Alamos National Lab, "Nervous Networks and the Evolution of Living Machines."

Dr. Brasl Hasslacher, Staff Member, Los Alamos National Lab, "Biomorphic Machines—Self-Organizing Survival."

Dr. Greg Chirikjian, Johns Hopkins University, "Metamorphic Robotic Systems: Theory and Hardware Implementation."

In a nutshell, attending the workshop was a great experience. Proceedings of the workshop will be printed and distributed to the attendees. 

## Science Fair Initiative a Success


Dr. Zafar Taqvi  
SFI Coordinator

Science Fair Initiative, the joint project of the AIAA Houston Section, the IEEE Galveston Bay Section, and the CLCTS to initiate Science Fair participation by the Pasadena Independent School District (PISD) high schools was a success. We wanted high school students to be given an opportunity to participate—and they did. We wanted quality projects from PISD sent to the Science Engineering Fair of Houston (SEFH)—and we sent four quality entries. We wanted to receive at least six awards at SEFH—and we did win six.

It was a great success, considering that this was the first year, and only four entries were sent to Houston.

Many of our technical people acted as mentors and judges, and that was probably the reason for the success. I conducted a special training program for the students on "How to Present the Project" in order to give them more confidence.

The four students from PISD will be honored by the Houston Section at a dinner meeting along with their teachers.

Science Fair Initiative was a great experience, and a rewarding one. 



Jeff Carr, Acting Director of Public Affairs for the Johnson Space Center, was the speaker at our March dinner meeting. He provided a very thought-provoking talk on how to keep the public informed of space activities.



## Also Noted

### Release No. 95-025

### NASA Scientists Discover New Element, Administratium

James Oberg

NASA News  
National Aerobics and Spacy Administration  
Lyndon B. Joplin Space Center  
Houston, Texas 77058

For Release Friday, March 31, 1995

The heaviest element known to science has been identified by NASA scientists. Its discovery explains a long series of mental health impacts observed in recent years.


The new element, provisionally named 'Administratium,' has no protons or electrons, which means that its atomic number is zero. However, it does have one neutron, 125 assistants to the neutron, 75 deputy neutrons, 111 assistants to the deputy neutrons, and from 1 to 3 massless secretary particles. This gives it an atomic weight of 312. The 312 particles are held together in the nucleus by a force that involves the continuous exchange of meson-like particles called memos, conducted by the secretary particles.

Since it has no electrons, Administratium is inert. However, it can be detected chemically because it seems to impede every reaction in which it is present (that is, it is an anti-catalyst). According to preliminary measurements, a very small amount of Administratium made one reaction that normally takes less than a second actually require over four days. There is some evidence that Administratium also impedes radioactive decay and slows the propagation of electromagnetic radiation through a vacuum.

Administratium is a quasi-stable substance, with a half life of approximately three years. After this period, the substance does not actually decay into a smaller nucleus. Instead, it undergoes a reorgani-

zation in which the assistants to the neutron, the deputy neutrons, and assistants to the deputy neutrons exchange places. Preliminary studies actually indicate that the nucleus increases in mass after each reorganization.

There is evidence that Administratium also occurs naturally in the atmosphere and tends to be self-concentrating. Theoretical considerations and intuition suggest that it is likely to be most dense near the tallest buildings on any building complex. For some unknown reason it also concentrates in flat open spaces and is densest near parking lots with the highest concentrations of reserved spaces.

Spinoffs of the manipulation of small amounts of Administratium are currently being developed at several NASA field centers. Research on the artificial concentration of the remarkable new material is being spearheaded at NASA HQ in Washington DC where natural deposits appear to be richest. 




## Get Involved!

### Mentors Needed

Shirley Brandt  
Councilor

We have had a request from the Clear Creek Independent School District for volunteer mentors to help students with their science projects. These projects are independent of the Science Fair projects. They are part of the curriculum for the Science Magnet Program.

Volunteers will act as consultants to the students working on these projects. The amount of time required is whatever the volunteer is willing to give. Any amount of time will be greatly appreciated.

Anyone who is interested can call Shirley Brandt at 280-4730. We will put you in contact with the liaison for the Science magnet Program. 

## **Mir: Busy Days in May**

**James Oberg**

Soyuz TM-21 is docked at the aft port (since March 16, 1995). This is where Kvant-1 had been attached since 1987. Progress M-27 is docked at the forward port (since April 7, 1995). There is one permanent docking cone at the -X position. The MDA (Multiple Docking Adapter, an old Skylab term) movable docking cone is mounted at the -Y position. Kvant-2 is at the +Y axis (since 1989); Kristall is at the -Y axis (since 1990).

Upcoming events:

April 28: EVA 1, prepare solar array for transfer (3 hours?) (1100 GMT?)

May 08: EVA 2, Supervise Kristall array retraction (-20% electricity), (0700 GMT). Move array from Kristall to Kvant-1 using transfer boom, supervise array deployment (6 hours?) (+20% electricity)

May 11: Launch Spektr Module from Baikonur, Proton booster (0657 GMT). Seal off Mir MDA -Y port (IVA).

May 12: Separate/Deorbit Progress M-27 (no capsule?)

May 13: Rotate Kristall from -Y to -X axis

May 16: EVA 3, Move docking cone in Mir MDA (-Y to -Z). Supervise other array retraction (5 hrs?) (-20% electricity). Deleting second array transfer saves several days of crew time here.

May 17: Rotate Kristall from -X to -Z axis.

May 18: Dock Spektr at -X axis (auto only—no remote control option) (0600 GMT).

May 19: EVA 4, Move docking cone in Mir MDA (-Z to -Y) (3 hours?) (0500 GMT).

May 19: Rotate Spektr from -X axis to -Y axis. Bring Spektr solar arrays on line ASAP.

May 20: (?) Begin activation of Spektr systems (about 5 days).

May 21: (?) IVA move cone from -Y (Spektr) to -Z (Kristall).

May 25: Spektr equipment available for utilization.

May 29: Rotate Kristall from -Z axis to -X axis.

Mir is now ready for the STS-71 docking. The Russians plan for this to occur June 12-17. After STS-71 departs (Thagard will have a 97-day flight), the -X port is cleared when Kristall is rotated back to the -Z position. STS-74 later emplaces a docking module on Kristall in its permanent (-Z) position; no further module rotations are required to support STS dockings.

In the first nine years of the Mir flight, two module rotations were performed. In sixteen days in May, four more will be performed, plus one after STS-71 departs. Forty Mir EVAs have been performed in nine years, and four more will occur in three weeks in April-May. Each new step of this intricate sequence depends on the success of the previous step. Pushing it all into the final days before the STS-71 mission (with little time for recovery from contingencies) was made necessary by the Spektr launch delay and by the electrical power supply shortage now being experienced. Note also that the first three big module dockings to Mir (Kvant-1 in 1987, Kvant-2 in 1989, and Kristall in 1990) all failed on their first approaches and had to be re-attempted several days later.

In November, the Priroda module is to dock at the MDA -X port. By then, another EVA (either a dedicated short EVA, or combined with an earlier EVA over the summer, such as the MIRAS deploy (acronym unknown??) in June) will have moved the cone again (-Z to +Z), and Priroda will be rotated to the +Z position. No further moves of this cone are needed unless the modules have to be rearranged. An EVA is then needed to move the external transfer boom from one side of Mir to the other, and a second is needed to move the second (already stowed) Kristall array to Kvant-1, and supervise the array redeployment there. Next, there will be two EVAs for the "EKA" deploy, involving an ESA cosmonaut, and in early 1996 a blitz of five or six EVAs for more solar panel work, in which the US/Russian panels brought up stowed on the STS-74 docking module are moved to the Kristall attach points and deployed there.



## Houston Section on World Wide Web

Dr. George C. Nield  
Chairman

For those of you who have access to the World Wide Web part of the Internet, check out the AIAA Houston Section Home Page. Our URL is:  
[http://www.jsc.nasa.gov/AIAA/AIAA\\_Home.html](http://www.jsc.nasa.gov/AIAA/AIAA_Home.html) ■



## Cranium Cruncher

Lou Livingston  
Editor

### March Cruncher

As a result of your editor's less-than-thorough filing system, Howard Wagner's correct solution to the March Cruncher was mislaid last month and his name failed to be included with the others. We apologize for the oversight and will try to avoid similar problems in future.

### April Cruncher

Submitted by Hank Johansson:

There are twelve coins. Eleven are genuine; one is counterfeit but can be identified only by weight. Using only three weighings on an equal arm scale and no weights other than the twelve coins, identify the counterfeit and determine whether it is heavier or lighter than the other eleven. Hint: you need to use *all* the evidence from each weighing.

### Solution

Hank Johansson's solution (the notation  $n$ ] indicates the  $n$ th weighing):

1] Place four coins on each side of the scale. They balance or not. 2] If they balance, compare three of the suspect coins (those not on the balance) with known genuine coins (those on the balance). They balance or not. If they balance, the remaining fourth

coin is counterfeit. 3] The counterfeit can be compared with a known genuine coin to see whether it is heavy or light.

2] If the scale is not balanced after the second weighing, the counterfeit is one of the three on the scale. Since the counterfeit is being compared against known genuine coins, it is heavy or light depending on how the scale tips. 3] For the third weighing, compare one of the three suspect coins with another. They balance or not. If they balance, the coin not on the scale is the counterfeit. If they do not balance, the counterfeit can be identified since it is already known to be heavy or light.

2] If the scale is unbalanced after the first weighing, replace three suspect coins from side A with three known genuine coins (those not on the scale). Move the three suspect coins from side A to side B after removing three (genuine) coins from side B. There are now four coins on each side. The scale stays the same, balances, or tips to the opposite side.

3] If the scale stays the same, the counterfeit is one of the two coins not moved. Compare either with a known genuine coin. If they balance, the counterfeit is the one not on the scale and is known to be heavy or light from the second weighing. If the scale does not balance, the counterfeit can be identified since it is known to be heavy or light.

3] If the scale becomes balanced, the counterfeit is one of three coins moved off the scale. It is known whether the counterfeit is heavy or light. The counterfeit can be identified as described above.

3] If the scale tips the other way, the counterfeit is one of three coins moved from side A to side B. It is known whether the counterfeit is heavy or light. Which of the three is counterfeit can be deduced as described above.

Your editor's solution makes more obvious use of the hint; it may also be a little easier to see that it covers all possibilities:

Three weighings can have  $3 \times 3 \times 3 = 27$  outcomes. If L means the left side is heavy, R means the right side is heavy, and B means the scale balances, arrange the possible results in pairs numbered from 1



to 12, arranging Ls and Rs so that each weighing will have equal numbers:

Heavy	Light	Coin
LLB	RRB	1
LBL	RBR	2
BLL	BRR	3
BBR	BBL	4
BRB	BLB	5
RBB	LBB	6
RBL	LBR	7
LRB	RLB	8
BLR	BRL	9
RLR	LRL	10
RRL	LLR	11
LRR	RLL	12

Number the twelve coins (using labels of uniform weight); based on the table above, make three weighings as follows:

First: 1, 2, 8, 12 left; 6, 7, 10, 11 right.

Second: 1, 3, 9, 10 left; 5, 8, 11, 12 right.

Third: 2, 3, 7, 11 left; 4, 9, 10, 12 right.

A result in the left column means the coin with that number is heavy. A result in the right column means that coin is light.

Three possible results are omitted: BBB, LLL and RRR. BBB can't tell you anything, and the other two would require an unequal number of coins on one weighing.

As of press time, Mike Lounge had submitted a correct solution. A complete list of correct solutions will appear in the June *Horizons*.

## May Cruncher

Here's an easy one. Each lane of a highway goes under an arched bridge. The arch is in the form of a semiellipse with the height equal to the width. A truck 6' wide and 12' high can just fit under the bridge. How high is the bridge?

Send your solutions to Michael Begley, Dynacs/HS-30, or via e-mail to [louliv@aol.com](mailto:louliv@aol.com), by May 26.



## AIAA Calendar

The AIAA Calendar is intended to encompass all Houston Section events and significant dates. This includes Executive Council meetings, which are open to interested members, and *Horizons* deadlines. It will also include committee meetings, Lunch & Learns and similar events if *Horizons* hears about them in time for inclusion. Please send pertinent details to Mike Begley, Dynacs/HS-30, or to Lou Livingston, 1911 Pepper Hill, Houston, TX 77058.

### May

#### 18 - Thursday

AIAA Executive Council meeting.

Center for Advanced Space Studies, 5 PM.

#### 19 - Friday

Houston Section Annual Technical Symposium.

Center for Advanced Space Studies, 8:30 - 4:30.

Information: Dr. Kam Lulla, 483-5159.

#### 22 - Monday

June *Horizons* inputs due.

Michael Begley, 244-8471.

### June

#### 15 - Thursday

Executive Council meeting,

Center for Advanced Space Studies, 5 PM.

#### 22 - Thursday

Monthly dinner meeting,

Program TBD.

Gilruth Center, 5:30/6:30/7:30.

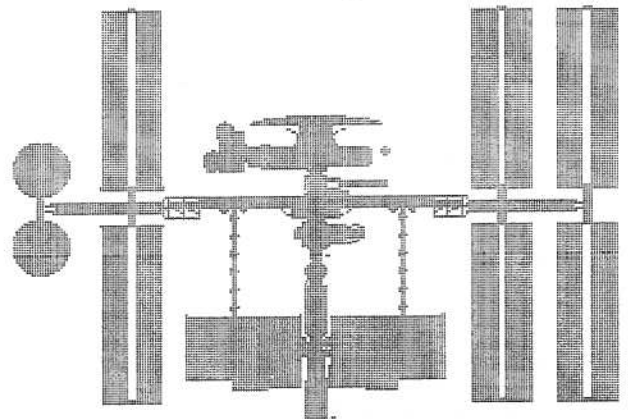
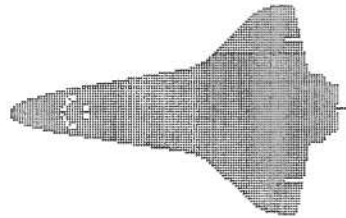
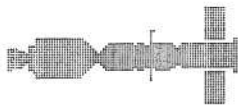
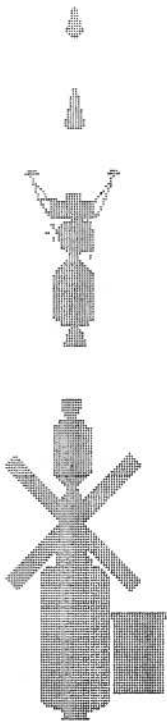




# Horizons

The mission of the Houston Section of the AIAA is to promote the advancement of the aerospace profession, with special emphasis on the following tasks:

- To provide the membership with opportunities for continuing education, professional growth, and recognition for their accomplishments.
- To stimulate the exchange of information within the scientific and technical community.
- To provide support and encouragement for students in learning mathematics, science, and engineering.
- To assist the general public in understanding the benefits of aerospace systems and technology.



**AIAA Houston Section**  
**P. O. Box 57524**  
**Webster, TX 77598**

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GEORGE NIELD  
CHAIRMAN 1994-95

**American Institute of Aeronautics and Astronautics**

HOUSTON SECTION P.O. BOX 57524 WEBSTER, TEXAS 77598

## HOUSTON SECTION

# 20th ANNUAL TECHNICAL SYMPOSIUM

**Friday, May 19, 1995**  
**Luncheon Speaker**

**WILLIAM M. SHEPHERD**  
**Technical Manager**  
**Space Station Program Office, JSC / NASA**

**Topic: *INTERNATIONAL SPACE STATION ALPHA:  
THE NEXT ITERATION***



**REGISTRATION: \$3.00 for AIAA MEMBERS**  
**\$5.00 for NONMEMBERS**

**REGISTRATION INCLUDES LUNCH & REFRESHMENTS**  
**(Reservations needed for lunch by May 15th, See below)**

**Lunch: 11:30 am**  
**Program: 12:15 pm**

**FOR TECHNICAL PROGRAM INFORMATION CONTACT:**

**DR. KAMLESH LULLA 483-5066**  
**BRENDA WARD 483-5159**

**Symposium will be at:**

**CENTER FOR ADVANCE STUDIES**  
**3600 BAY AREA BLVD.**

**TANYA BRYANT**  
**483-1175**  
**NASA**

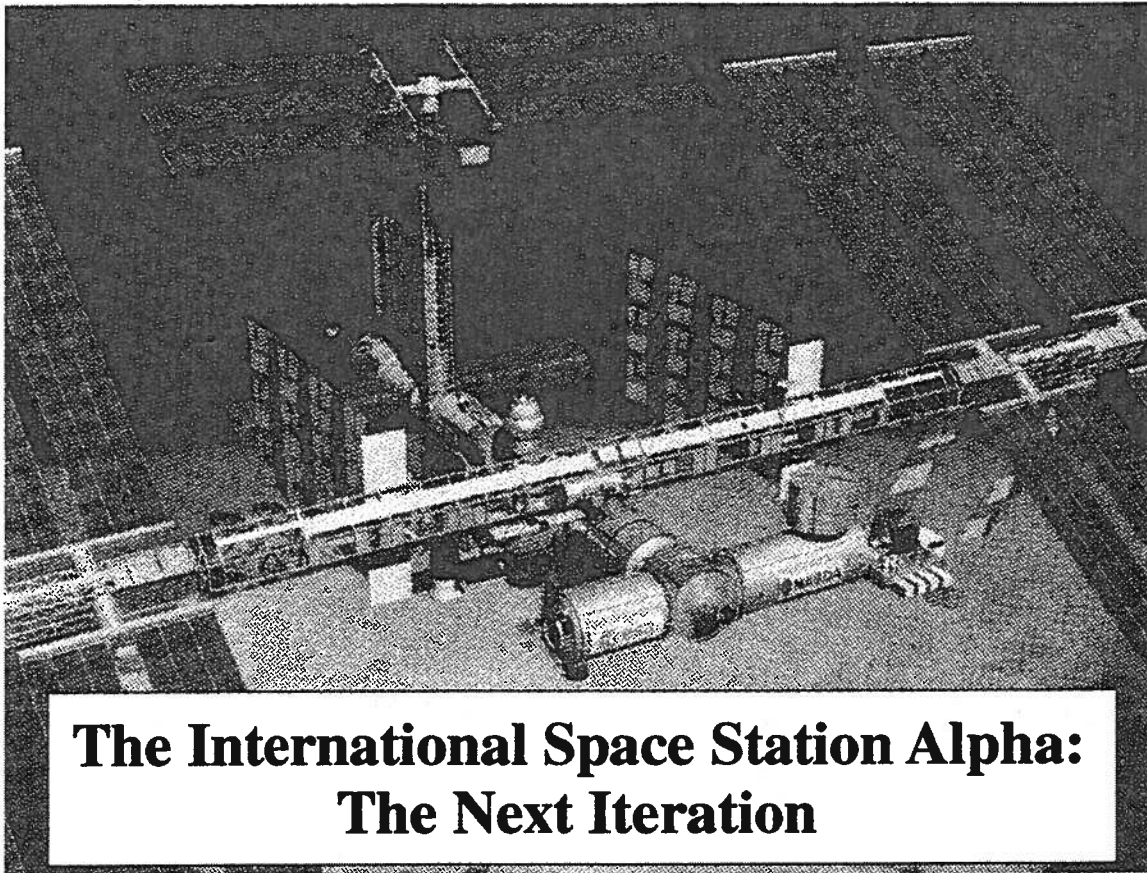
**SARAH LEGGIO FOLLETT**  
**282-3160**  
**ALLIEDSIGNAL**

**CALL ONE OF THE ABOVE FOR LUNCHEON RESERVATIONS.**  
**NOTE: RESERVATION DEADLINE IS MONDAY, MAY 15, COB.**

**ALL ARE WELCOME**

*"Americans know vaguely that a space station is being built, but do not know why . . ."* (Editorial, Space News, April 3, 1995)

# Here is your opportunity!



## The International Space Station Alpha: The Next Iteration

AIAA Annual Technical Symposium 1995

**May 19, 1995**

**8:30 am - 4:30 pm**

Center for Advanced Space Studies (LPI)  
3600 Bay Area Blvd., Houston, Texas 77058

**Speakers include: Randy Brinkley, ISSA Program Manager**

**William Shepherd, ISSA Deputy Program Manager**

**William Bates, Douglas Cooke, Dale Thomas, Chiold Epp, Michelle Brekke, Harold Taylor,  
John David Bartoe, Craig Stencil and other deputy managers and team leaders.**

**For more information please contact:**

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**American Institute of Aeronautics and Astronautics**

**The AIAA Young Members Committee presents a**

**Tour of the Confederate Air Force's  
World War II Vintage B-17 Bomber  
'Texas Raiders'**

**The program will include talks from CAF members regarding the history, maintenance, and operation of the aircraft, followed by a walking tour around and inside the aircraft.**

**Saturday, May 13, 2pm  
CAF Building  
Ellington Field**

**All interested AIAA members and relatives are invited.**

**Call Paul Judas, (713)333-3703 ext. 116 to RSVP and for more information.**

**An RSVP is greatly appreciated.**