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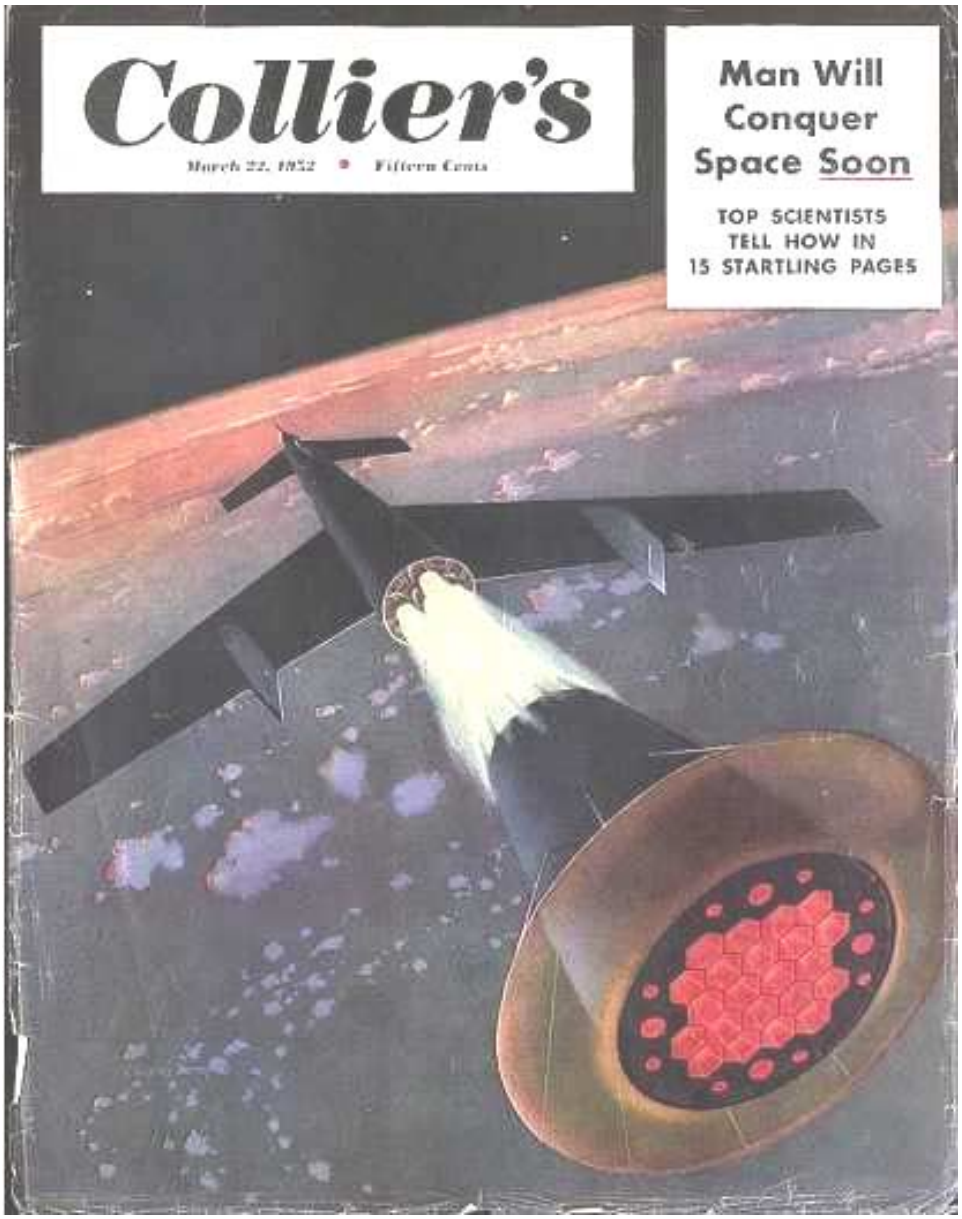
The Ugly Spaceship and the Astounding Dream



Dr. Wernher von Braun's Illustrations from Collier's Magazine

One person's brush with a simple magazine article set him on a path to the stars. Read the article on page 3.

Becoming an AIAA member

Are you interested in becoming a member of the AIAA or renewing your membership? You can fill out a membership application online by going to the AIAA membership website at www.aiaa.org/information.

April 19 Input Deadline for the Next Edition of *Horizons*

Contributions can be submitted by email to Carlos E. Blanco at carlos.e.blanco@boeing.com.

Features

In Every Issue

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Chairman's Corner

By Darby Cooper, Chairman

CPAD, CVD, ATS, WAR, WSC – not only are our professional activities full of acronyms but so are AIAA activities.

The last newsletter contained all of the details on our second CPAD (Career Planning and Development Workshop) in the March newsletter. Congressional Visits Day (CVD) was held March 20-21 in Washington, DC. This is the annual event where representatives from AIAA pay a visit to all of the congressional members. Look for a full report in the May newsletter. ATS is the Annual Technical Symposium – this year we're holding the AIAA ATS in conjunction with two other long-standing technical events – the Innovations conference and the Workshop on Automation and Robotics (WAR). Look for details elsewhere in this issue. An these events provide an excellent chance to practice presentations for the World Space Congress (WSC) coming to Houston next fall.

It's also election time – have you ever considered being more involved in the Houston Section? Please feel free to contact me about available open positions. Ballots will be coming so to your mailbox.

How about writing? Have you ever considered making a contribution to Horizons? Carlos is always looking for interesting articles on what our members are doing or activities they are involved in.

It is turning out to be a very exciting year for the section. I hope that if you have any suggestions, questions, or concerns feel free to contact me or any of the executive council members.

The Ugly Spaceship and the Astounding Dream

By Albert Jackson, Astrodynamics Technical Committee Chair

I was 11, a week from being 12 years old. It was in the mailbox. "It" was October 18 1952 issue of Collier's magazine. I had seen the movie Destination Moon; I had my copy of Fletcher Pratt and Jack Coggins' ROCKETS JETS, GUIDED MISSILES AND SPACE SHIPS. Where was the bullet shape? The fins? The needle nose? This was not right! This was supposed to be a space ship! It was ugly!

Yet, that lighting, the color, that splash of molten rock! The detail! How could something so ugly catch my imagination? How could it be so real? I took that issue to my room, ugly!

It lay about most of the day. Well, eventually I had to read it. That week I must have read that issue 20 times!

Air! If you don't have air, you don't need aerodynamics. I thought about Willy Ley and Wernher von Braun's words. Yeah! To land on the moon you don't need a bullet shape. Almost any shape will do.

I came to love that ugly space ship! It cemented itself to my soul. It led me to a life in science, a B.A. degree in Mathematics, an M.A. degree in Physics and a Ph.D. in physics. Most startling, to me, that series led me to 35 years of work in spaceflight, first Apollo, the Shuttle program, and now the ISS. All due to the romance of space expressed by Chesley Bonestell, Wernher von Braun and Willy Ley.

Landing on the Moon

March 22 2002 marks the 50th anniversary of the most influential feat of popular science writing ever. The March 22 1952 issue of Collier's stands a landmark in the history of space flight.

Collier's magazines from March 1952 to April 1954 outlined an amazing dream[2]. There was a huge vertical three-stage launch vehicle with its horizontal landing ferry space ship, a large toroidal space sta-

tion, orbital transport ships, a base on the moon, exploration of the moon, and ultimately a manned expedition to Mars. Even thought the exposition in each issue was brief; all aspects of manned space flight were covered. Besides the hardware there was coverage of the medical/psychological and training elements of manned space flight, even the legal aspects of manned exploration of earth orbit and the moon. The prose in the Collier's issues was simple, direct and clear. The illustrations on the covers and pages conveyed an immense sense of detailed design. Even if those articles were fairly short the amount of information contained in the paintings and drawings enfolded a mind-boggling amount of depth of thought.

Third stage ferry, space station and space telescope in orbit

The March 22 issue of Colliers dealt with the design and building of the space station. The basic building blocks ferry ship and were incredible, in the words of Wernher von Braun:

> *"Imagine the size of this huge three-stage rocket ship: it stands 265 feet tall, approximately the height of a 24-story building. Its base measures 64 feet in diameter. And the over all weight of this monster rocket ship is 14,000,000 pounds, or 7,000 lbs. – about the same weight of a light cruiser."*

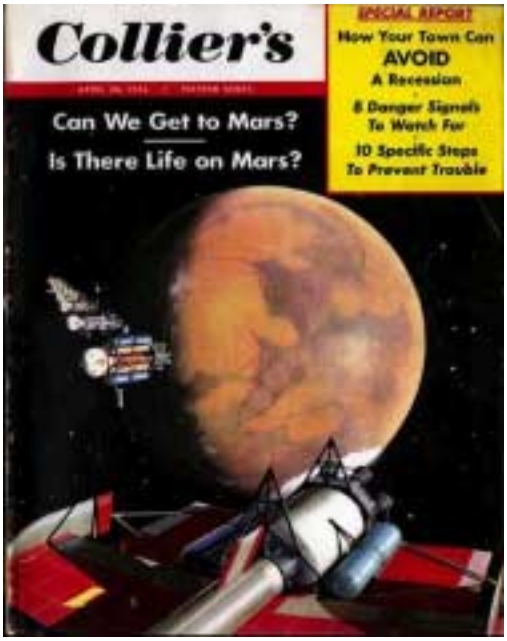
Hardly mentioned is that in the building and testing this ferry ship, man would have made his first orbital flight!

Only 15 years later von Braun led his Marshall Space Flight Center crew to design and build the Saturn 5.

Most interesting is how von Braun had expanded his idea of a Mars expedition (more on that below). He now recognized the importance of establishing what we call a "node" in low earth orbit and introduced the space station. Important for many reasons the von Braun space station would serve as an assembly point for expeditions to the Moon and Mars. This was important logistical concept and solution to a crucial mass ratio problem. Much more economic to launch from earth orbit than from a deep potential well.

Cutaway view of the ferry cabin

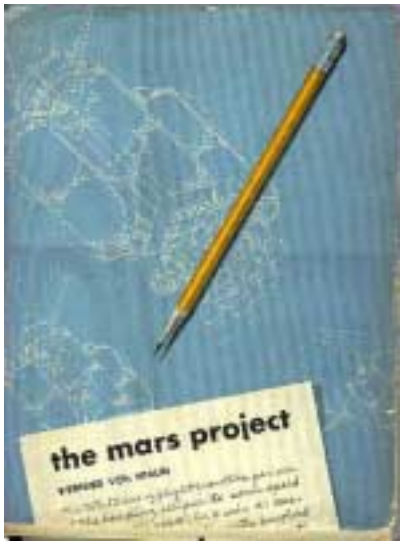
The design of a total manned space flight mission had occurred before, in 1939 The British Interplanetary Society had planned out a mission to the moon. The scale of the Collier's space flight series was titanic. The space station and Moon expedition, and then the vision of a grand flotilla of ten space ships that would go to Mars for an expedition time of 2 years, with 70 explorers! Fifty men go to the surface, 20 stay in orbit. Everything is worked out, even the 950 ferry flights needed to assemble the ten space ships. In the Collier's series the build up to the Mars expedition is elaborated. First the Space Station is built, with the following logical Moon exploration.



The Grand Flotilla to Mars

One has the impression by the end of the lunar exploration in the Collier's series, that mankind has a permanent foothold in space.

The full realization, 1952 to 1954, of this Collier's series is astounding, not less due to the illustration artistry of Chesley Bonestell, who was already famous for his paintings with astronomical settings. The Collier's series exceeded any illustration work he had ever done. The composition, point of view, color and, indeed, "sense of wonder" are probably the greatest examples of "space art" ever done. (Let us not for get the wonderful illustration work done by the artists Fred Freeman and Rolf Klep).



The English version of Dars Marsprojekt

There is an interesting sequence of events, before the Mars Expedition appeared, that the Collier's series, was kind of back fill. Von Braun and his Peenemünde colleagues* had envisioned the ferry ships and the interplanetary passenger-cargo vehicles in 1948. This "paper mission" appeared as the last installment of the Collier's series April 30, 1954, but had been worked out six years before!

Dr. von Braun's Mars paper project was worked on between the end of 1947 and through out 1948. It was published in special edition of the German space flight journal Weltraumfahrt in 1952, later that year in a hardback edition. Lucky for me I bought a copy of the English translation in 1953, from the University of Illinois Press.

This slim little volume details the design of the earth-to-orbit ferry vessels, the passenger/cargo ships and the Martian landing "boats". The chapter headings are, (a) THREE-STAGE FERRY VESSELS, (b) SPACE SHIPS, (c) LANDING BOATS, (d) FERRY FLIGHTS AND GENERAL LOGISTICS, (e) POWER PLANT PERFORMANCE and (f) INTERPLANETARY RADIO COMMUNICATION.

Das Marsprojekt is an amazing technical conception for 1948! Von Braun implies the reason for the size of the Mars mission design, in his introduction, when he talks about Columbus and his exploration. It seems that von Braun realized that the expedition needed redundancy. Though redundancy is not elaborated as a concept in Das Marsprojekt it is evident that 3 "landing boats" and 7 cargo/transport ships insures the success of a mission, so far from home!

Later in the Collier's series space taxies and space suits were invented. Expanding the 1948 ships and mission design to a space station and lunar expedition was a logical extension of the original conception.

All in all the Collier's space series influenced thousands of people, some who became wonder struck supporters and some who became active participants in American space history. Like me!

**Though fully acknowledged, one notes, strong contributions were made to Das Marsprojekt by Krafft Ehricke, Dr. Hans Friedrich, Dr. Josef Jenissen, Dr. Joachim Mühlner, Dr. Adolf Thiel and Dr. Carl Wagner.*

References

(1) Pratt, Fletcher. Illustrated by Coggins, Jack. Rockets, Jets, Guided Missiles and Space Ships.
(2) The Collier's Space Flight Series:

- March 22, 1952: Man Will Conquer Space Soon, a collection of eight articles.
- October 18, 1952: Man on the Moon, The Journey, and Inside the Moon Ship
- October 25, 1952: Man on the Moon, Inside the Lunar Base
- February 28, 1953: World's First Space Suit
- March 7, 1953: Testing the Men in Space
- March 14, 1953: How Man Will Meet Emergency in Space
- June 27, 1953: Baby Space Station
- April 30, 1954: Can We Get to Mars? and Is there Life on Mars?

(3) Across the Space Frontier. ed. Cornelius Ryan (New York: Viking Press, 1952)

(4) Conquest of the Moon, ed. Ryan (New York: Viking Press. 1953).

(5) Marsprojekt; Studie einer interplanetrischen Expedition. Sonderheft der ZeitschriftWeltraumfahrt. Frankfurt: Umschau Verlag, 1952.

(6) Das Mars Projekt / Wernher von Braun. - Esslingen: Bechtle Verlag, 1952.

2nd Annual Yuri's Night

By Nicole Smith, Chair-Elect

April 12th is a significant day for major space achievements, such as: the first human in space (Yuri Gagarin), the first launch of first reusable space vehicle (Shuttle), and the birthday of the International Space University.

So on April 12th 2001, the 40th anniversary of Yuri Gagarin's flight, there was a World Space Party. Sixty-four celebrations on all seven continents, simultaneously celebrating humankind's attempt to reach beyond this planet, reach beyond themselves, and better us all.

Former JSC Director, George Abbey, speaks during last year's Yuri's Night

Houston participated in this amazing event with a turnout of over 300 people at the Outpost Tavern in Clear Lake City. Proceeds of nearly $1000 benefited the International Space University and the International Space School Foundation.

This year the dream is still alive and Houston will participate again. Houston's Yuri's Night 2002 is the lightening rod to attract attention for THREE major 'space' events taking place in Houston this October 10th-18th: World Space Congress, Space Generation Summit and the Space Rocks! Concert. Come to Yuri's Night to see exciting video presentations, plus meet several cosmonauts, astronauts and other prominent Houston aerospace figures. The bands Clan Ceili (a Celtic band), the astronaut band Max Q, as well as one or two other local bands are providing live entertainment. The fun will start at 5:30pm and continue to 1am at The Outpost Tavern.

Russian folk dancing during last year's Yuri's Night

Related links:
www.yurisnight.net
www.freeweb.pdq.net/janathehat/yurisnight
www.aiaa.org/WSC2002
www.outpost-tavern.com
www.unsgac.org

2002 Future City Competition Kicks Off National Engineer's Week

By John Keener, Publications Chair

A team of students from Seabrook Intermediate School recently won the "Most Futuristic Design" award at the 2002 National Engineer's Week Future City Competition at San Jacinto College. The award, sponsored by the Boeing Company, was one of several special awards given out at the competition.

The event, now in its 10th year nationally and its fourth year in the Houston area, challenges students to design a city of the future using SimCity 3000 computer software. They must deal with traffic, pollution, energy needs and other problems of urban areas. Models must be made for under $100, using mostly recycled materials.

The students started at the beginning of the school year developing a software model of their city, which is scored, based on criteria of population, education, crime, and unemployment. The design also considers such factors as aesthetics, food supply, water distributions, green space and others. The Seabrook team developed a design based on New York in the year 2077 for their effort.

The students then built a scale model of a section of the city. While they could choose any scale they desired, they had to choose a scale. They chose a scale that would allow them to put detail into each structure, as opposed to more of the city. The actual scale was based on scaling a "Hot Wheels®" car to an actual automobile.

The third facet of the competition was the essay, abstract and presentation. The students wrote an abstract describing their model and its main features. The essay was developed from research on energy to the design problem of energy management. They were to choose one of three broad categories:

1. Exploration or Research for Energy Sources
2. Design and Generation of Energy
3. Energy Conservation and Efficient Power Utilization

During the morning portion of the competition the students used the model, map and flip charts to describe their city, its features, and what make it a desirable place to live. The students made this presentation to a single panel of judges. The judges then selected six teams to present their models to the entire audience at the competition. The Seabrook team was one of the six chosen for the final presentation.

The overall winner of this year's competition was Trandy's Island, a futuristic community set underwater at Australia's Great Barrier Reef from Atascocita Middle School in Humble.

Seabrook Students fielding questions from Future City Judges

Sandy Peck, the science magnet liaison for the school, sponsored the Seabrook Future Cities entry. The engineer mentor was John Keener at Lockheed Martin/SEAT.

Houston Section Members Participate in Mars Settlement Design Competition

By Nicole Smith, Chair-Elect

Several AIAA Houston Section members volunteered at the fourth annual Mars Settlement Design Competition, held at NASA JSC on 22-24 February 2002. 142 high school students and 13 teachers from 53 high schools in 35 school districts came to compete in the design competition. Three Houston Section Young Professionals, Nicole Smith, April Vasquez and Chris Vasquez, were co-CEOs for the

"Rockdonnell Aerospace Company", which consisted of about 35 members. Joy Conrad, another Houston Section Young Professional, also volunteered in the competition's research library.

The Mars Settlement Design Competition is an industry simulation in which high school students experience working as a member of an aerospace company team while developing a design and operations proposal for the new Mars base. The requirements for the new base, specified by The Foundation Society, are complex, challenging, and exciting, requiring imaginative and innovative approaches and solutions.

By participating in the Mars Settlement Design Competition the students learn about Mars, space science, the space environment, engineering careers, organizing, integration of complex activities, teamwork, management, and effective communications in an exciting and unusual context. The Competition is conducted annually as part of JSC's recognition of National Engineer's Week.

February Dinner Meeting

By Michael Gaboury, Programs Chair

February's Section Dinner Meeting brought in a new approach for our presentations. We had a joint meeting with the South Texas Section of the American Society of Mechanical Engineers (ASME). Dr. Rick Bannerot of ASME arranged to have Dr. Mel Kanninen speak on the topic of "Aging Aircraft in the Nation's Time of Terrorism." A special thanks to Dr. Bannerot for helping make the program a rousing success. The teaming with another professional organization was very successful and hopefully will serve as a model for future meetings.

Future programs:

- March 28 at NASA/JSC Gilruth Center: Dr. Leonard Yowell from the JSC Materials and Processes Branch on Nanotube Composites and Applications for Human Spaceflight.
- April 25 at Nassau Bay Hilton: Dr. William Ailor, AIAA Distinguished Lecturer on Meteroids, Space Debris and Other Space Hazards.

Robots Compete in FIRST Lone Star Robotics Competition

By Joy Conrad King, Pre-Collegiate Outreach Chair

Forty-three robots from several states gathered in the Astroarena from March 14 - 16 for the FIRST Lone Star Robotics Competition. After a day of practice driving and fine tuning, the robots competed in several rounds of seeding matches. The top eight teams at the end of the rounds then selected two teams to take with them to the final rounds.

LaPorte High School RoboDogs

High school students and engineers built the robots during an intense 6-week period. FIRST (For Inspiration and Recognition of Science and Technology) was stared by inventor Dean Kamen in 1992 to encourage student's participation in engineering. It has now grown to more than 650 teams including teams from other countries.

The winners from the Lone Star Regional Competition are:

- Team 34 Butler High School in Huntsville, AL
- Team 457 South San High School in San Antonio, TX
- Team 192 Gunn High School in Palo Alto, CA

For more information about FIRST, visit www.usfirst.org.

WAR 2002 Workshop is Coming

By Dr. Zafar Taqvi, Automation and Robotics Technical Committee Chair

Workshop on Automation and Robotics, the annual event organized by the AIAA Houston Section Automation and Robotics technical Committee is slated for Thursday, May 16th 2002 at the University of Houston Clear Lake Bayou Building. The TC has organized WAR for over 16 years and it covers state of art topics in the area of automation and robotics.

Both the WAR and INNOVATION events will be held on the same day (Thursday, May 16th) separated by a joint luncheon. Prof. Tayfun E. Tezduyar, the James Barbour Professor and Chair of Mechanical Engineering at Rice will be the Luncheon Speaker. WAR program event is FREE.

Boeing's February Lunch 'n Learn

By Brian Dunaway, Guest Contributor

Due to the "early" ingress of the International Space Station (ISS) before its Environmental Control and Life Support (ECLS) systems became operational, it became necessary for the Shuttle Orbiter to provide all ECLS control. Control of pressure, humidity, temperature, carbon dioxide, and trace contaminants drive air quality, crew comfort and safety, and condensation concerns. The Orbiter and ISS ECLS community created work-arounds necessitated by the early ingress scenario.

Mass and space are always at a premium on the Orbiter and ISS, so integrated consumables management between the Orbiter and ISS is an important focus. Solutions for optimizing the use of lithium hydroxide canisters (for control of carbon dioxide), water (for cooling and crew consumption), and gaseous consumables have been proposed, considered, and often implemented.

NASA Science Project by Houston-Section Member Recognized by AIAA Journal

By Nicole Smith, Chair-Elect

The results of a NASA science project by one our Houston-Section members will appear in the March-April Issue of the Journal of Spacecraft and Rockets. Mr. Jim Visentine served as the ISS project scientist of an international team selected by NASA and the Russian Space Agency to inspect and evaluate a large solar array panel that was removed and returned several years ago from the Mir Space Station.

This hardware is one of the few remaining items that has been returned and historically preserved by US and Russian teams as an example of the joint Shuttle-Mir technology program. The title of Jim's paper is "Mir Solar-Array Return Experiment: Power Performance Measurements and Molecular Contamination Analysis Results".

Jim, who is an AIAA Associate Fellow, has formally served as Membership Chairman and Chairman of the Energy Systems Technical Committee for the Houston-Section. Jim retired from NASA in 1997 and immediately went to work as a project scientist and senior analyst with the Boeing Space Station Program Office. If you wish to give Jim a call to renew old acquaintances and say hello, his telephone number at Boeing is 281-226-6781.

Congratulations to the New Houston-Section Associate Fellows

By Sophia Bright, Vice Chair - Operations

At our joint dinner meeting with the South Texas Section of American Society of Mechanical Engineers (ASME) on February 21st, we had an opportunity to congratulate some guests from Texas A&M University for their upgrade to Associate Fellow. The new Associate Fellows are Dr. John Valasek, Dr. Paul Cizmas, Dr. Othon Rediniotis, and Mr. William Arceneaux. Mr. Arceneaux and Dr. Othon Rediniotis were not able to make it to the dinner meeting.

An Associate Fellow is nominated as a member of AIAA in good standing and are persons who have accomplished or been in charge of important engineering or scientific work, or who have done work of outstanding merit or have otherwise made outstanding contributions to the arts, sciences, or technology of aeronautics and astronautics.

Mr. Arceneaux is the Manager for the International Space Station Vehicle System Integration Office at NASA Johnson Space Center. Mr. Arceneaux has been a long standing member of AIAA and an important contributor to the space program.

The other three Associate Fellows are Associate Professors in the Aerospace Engineering Department at Texas A&M University

Dr. Paul Cizmas has diverse interests in the following technical areas:

- Propulsion
- Unsteady Aerodynamics and Heat Transfer
- Computational Fluid Dynamics
- Fluid-Solid Interaction
- Massive Parallel Processing

Dr. Paul Cizmas – Associate Fellow

Dr. Cizmas is active in AIAA, ASME and Society of Industrial & Applied Mathematics (SIAM).

Dr. Rediniotis is the Director of the Fluid Dynamics Research Group of the Aerospace Engineering Department. His areas of interest are in:

- Laser Doppler Velocimetry (LDV)
- Vortex dynamics
- Steady and unsteady delta-wing dynamics
- Flow visualization

Dr. Othon Rediniotis – Associate Fellow

Dr. Valasek's technical interests are:

- Flight Control System Analysis and Design
- Flight Dynamics, Stability, and Control
- Flight Simulation
- Aerospace Vehicle Design
- Flight Safety

Dr. Valasek is active in AIAA, serving as Chairman on the Atmospheric Flight Mechanics Technical Committee and as Faculty Advisor for the Texas A&M University Student Branch. He is also active in IEEE and Sigma Gamma Tau.

Dr. John Valasek – Associate Fellow

Congratulations again to the 2002 Associate Fellows!

Becoming an Associate Fellow is a testament to the caliber of contributor to the academics and industry related to aeronautics and aerospace. A maximum of 1 Associate Fellow for every 150 voting members is upgraded annually. This year there is the potential for close to 200 Associate Fellow upgrades nationally by the Membership Committee.

If you are interested in becoming an Associate Fellow the criteria is as follows:

1. Nominees must be Senior Members of AIAA with at least 12 years of professional experience. Four years of post doctorate studies may be applied to your years of professional experience.
2. Nominees must submit the Application for Associate Fellow Grade to the Associate Fellow Grade Committee NO LATER than April 15, 2002.
3. Nominees must also furnish three references of Associate Fellow grade or higher. These references must be submitted to the Associate Fellow Grade Committee no later than May 15, 2002

All newly elected 2003 Associate Fellows will be announced December 1, 2002.

If you do not have time to submit an application this year, the next round of Associate Member upgrades for 2004 will be due on April 15,2003.

For more information regarding Associate Fellow upgrades please feel free to contact the Honors & Awards Chair, Rakesh Bhargava at bhargava@uei-houston.com.

INNOVATION 2002 Symposium is Coming

By Dr. Zafar Taqvi, Automation and Robotics Technical Committee Chair

The annual multi-society symposium, INNOVATION 2002, organized by the local Bay Area member professional societies and the Clear Lake Council of Technical Societies (CLCTS) is slated for May 16th, 2002 at the University of Houston Clear Lake. Member societies organize one or more sessions consisting of 2-3 papers each and present at the INNOVATION. AIAA Houston Sections has been supporting this event with 2-3 sessions. Deadline for the submission of abstracts is April 2nd, 2002. Anyone interested in submitting a paper should contact Dr. James Dabney, General Chair at Dabney@cl.uh.edu or Dr. Zafar Taqvi, Program Chair at Z.Taqvi@IEEE.Org for any further details.

Help AIAA Help You – Update Your Member Records

By Henry Schmidt, Membership Chair

Some of us in Aerospace have been here quite a while. Why don't you let yourself get recognized for it by updating your file to Senior Member? It doesn't cost you anything and you let the younger folks whom to call with experience.

Our industry is hard pressed for getting the word out to those who need help in our industry. We owe it to the young people and ourselves to open ourselves up to helping others. Also, AIAA and our colleagues recognize us.

With all of these potential changes, have you verified if your AIAA member record is up to date? Knowing where our members are working is vital to the Houston Section in obtaining corporate support for local AIAA activities (such as our monthly dinner meeting, workshops, etc.). Please take a few minutes and visit the AIAA website at http://www.aiaa.org/ to update your member information or call customer service at 1-800-NEW-AIAA (639-2422). Feel free to also contact the section's Membership Chair, Henry J at 281-244-4629. If you prefer, contact me by e-mail at henry.j.schmidt@boeing.com.

Fellow Upgrade Applications Due June 15

By Sophia Bright, Vice Chair - Operations

AIAA Fellow Grade Selection Committee will be accepting nominations for Fellow upgrades through June 15, 2002. Persons of distinction in aeronautics or astronautics, and who have made notable valuable contributions to the arts, sciences, or technology and are of Associate Fellow status are eligible for nomination.

To complete the nomination package 5 references must also be furnished to the Fellow Grade Selection Committee. The references must be received by July 15, 2002. Each of the 5 references must be a current member of AIAA. Of those references one

must be a Fellow and a second reference can either be another Fellow, a National Officer, Section Chairman, or Technical Committee Chairman. At least three of the references should be individuals that are outside the nominee's organization.

If you are interested in being nominated or know of someone who should be nominated please contact the Houston Section Honors & Awards Chair, Rakesh Bhargava at bhargava@uei-houston.com. You can also contact Peter Gabriel, AIAA Honors & Awards Liaison, at 703/264-7623.

Becoming an AIAA Member or Renewing Your Existing Membership

By Henry Schmidt, Membership Chair

You are missing out, when you are not an AIAA member. For one thing, you get a monthly magazine called "Aerospace America," with all different types of articles on pertinent information to our industry. You are notified of meetings, symposia's, and conferences. You are able to get periodicals and books on the cutting edge technology in your field. So, don't miss out, join today!

You can fill out a membership application online by going to the AIAA National website at http://store.aiaa.org/memberships.cfm or call 1-800-NEW-AIAA (639-2422).

Please note if you have not used the AIAA on-line store then you will need to set up an account before purchasing a new membership (or even if you are renewing your membership). If you are purchasing a new membership the "store" will assign a temporary account access number to you until you have an AIAA membership number assigned to you. All existing members will use their membership numbers to establish an account.

Also if you know any students who would like to upgrade from a student member to professional member, all they need to do is submit a professional membership form and indicate that they are upgrading. This will enable that person to receive their first year of professional membership free.

If you are or know someone who needs to transfer their membership affiliation to the Houston section, please go or direct them to the following website to update membership information, http://www.aiaa.org/Members/index.hfm?memo=2.

If you have any questions regarding any of the items addressed above please feel free to call AIAA National customer service number listed earlier. You can contact our section Membership Chair, Henry J at 281-244-4629. Or, if you prefer, contact me by e-mail at henry.j.schmidt@boeing.com.

Table 1: Membership Type Description

Membership Type	Description	Fee
Student	Persons interested in aeronautics or astronautics whose primary activity is study at a recognized college, university, and secondary schools offering curricula and studies acceptable to the Institute.	$10 (1 February to 30 June) $20 (1 July to 31 January)
Return to Full-time Study	Members are eligible for this dues discount when taking 12 credits or more at a recognized college or university. You retain your professional member status.	$42.50
Associate	Persons interested in the development or application of aeronautics and astronautics.	$85.00
Young Professional	If you meet the qualifications of Member or Associate Member, are within your first five years of professional practice, 35 years of age or younger and have never been a student member, you are eligible to join at half the current dues rate.	$42.50
Professional	Persons shall have achieved a Bachelor degree in science or engineering, or equivalent qualifications through professional practice.	$85.00
Fellow	Fellow Renewal	$100.00
Spouse	When two members, who meet the requirements of Member or Associate member are married to each other, on of the spouses may pay dues at half the current dues rate. Both members will receive full privileges, but only one copy of Aerospace America will be mailed. Spouse name and ID number are required.	$42.50
Retired	Any member in good standing who has fully retired may take advantage of this rate. (excludes Fellows, see Retired Fellows).	$42.50
Retired Fellow	Any Fellow in good standing who has fully retired may take advantage of this rate.	$50.00
Lifetime	Persons shall have achieved a Bachelor degree in science or engineering or equivalent qualifications through professional practice and wishes to make a one-time dues payment.	$1275.00
Unemployed	Any member in good standing may take advantage of this rate. You will have to indicate your status at renewal time.	$42.50

NASA's Turning Goals Into Reality Conference
AIAA's X-Vehicles Symposium

WHEN: **MAY • 21-23 • 2002**

WHERE: **The Westin Hotel**
Santa Clara, CA

AIAA's X-Vehicles Symposium, featuring the past, present, and future contributions of X-vehicles to the aerospace community, will kick off this collaborative NASA and AIAA event. At NASA's Turning Goals into Reality Conference (TGIR), topics of transformation dominate discussions, featuring the new NASA Administrator, Sean O'Keefe and Secretary of Transportation, *Norman Mineta. Join NASA as they present progress reports and celebrate this year's major accomplishments. Don't miss your chance to take part in this premier event!

*invited

For more information, call
AIAA Customer Service at 1-800-639-2422.
www.aiaa.org

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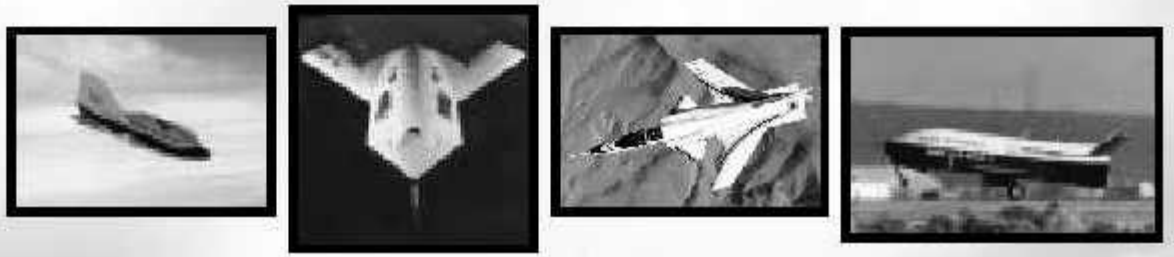
American Institute of Aeronautics and Astronautics



Calendar of Events

April 2002

4/12 Yuri's Night
- Location: Outpost Tavern, Clearlake, TX
- Celebration of the 41st anniversary of Yuri Gagarin's space flight, which made him the first human to venture into Earth orbit.

4/19 State-of-the-Art Tutorials
- Location: Nassau Bay Hilton, Houston, TX
- All-day tutorial conference.

4/25 Meteoroids, Space Debris and Related Space Hazards presented by Dr. William Ailor
- Part of the Section's Dinner Lecture Series; our distinguished lecturer will discuss this fascinating subject which is of special importance to anyone interested in near-Earth orbital operations**.**

TBD Region IV Student Paper Conference
- Location: Austin, TX

May 2002

5/14 – 5/17 Space Mechanisms Technology Workshop
- Ohio Aerospace Institute, Cleveland, OH. The symposium is concerned with problems in design, fabrication and use of mechanisms. The workshop will deal with technology that is needed for the future.

5/16 WAR 2002 Workshop
- Location: Gilruth Recreation Center, NASA JSC, Houston, TX.
- Workshop on Automation and Robotics.
- Registration deadline: May 7, 2002

5/16 INNOVATION 2002 Symposium
- Location: Bayou Building, University of Houston Clearlake
- Multi-society symposium.
- Abstract submission deadline: April 2, 2002

5/21 – 5/23 AIAA X-Vehicles Symposium
- Location: Westin Hotel, Santa Clara, CA
- Symposium featuring the past, present and future contributions of X-vehicles to aerospace endeavors.
- Featured speakers: NASA Administrator Sean O'Keefe and Secretary of Transportation Norman Mineta.
- See ad in previous page

5/30 The B-2 Bomber: Vital Weapon System or White Elephant? presented by Professor John Valasek
- Part of the Section's Dinner Lecture Series; our distinguished lecturer will discuss this subject, which should be of interest to anyone wanting to know more about Pentagon weapon systems procurements.

TBD Global Air and Space 2002 Conference
- Location: Washington, D.C.

June 2002

TBD AIAA Houston Section Annual Awards Banquet

October 2002

10/11 – 10/20 World Space Congress 2002
- Location: George R. Brown Convention Center, Houston, TX.
- Event is billed as the "meeting of the decade for space professionals."

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

April 2002