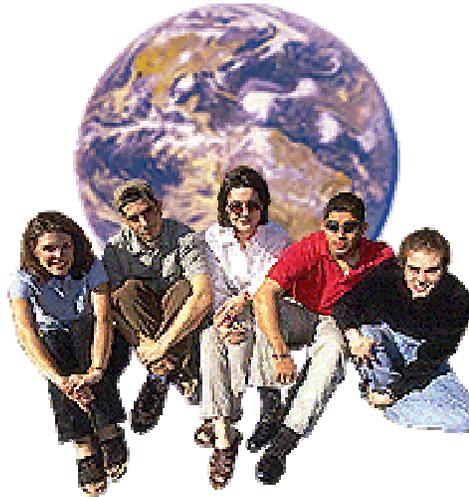


Young Professional Career Workshop 2002



Graphic courtesy of Rensselaer Polytechnic Institute

Have you registered to improve your career? See details on page 7.

E-Week 2002



NATIONAL ENGINEERS WEEK* 2002

FEBRUARY 17-23

Have you volunteered to visit a classroom? See details of E-Week on page 5 and 6.

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.

February 15 Input Deadline for the Next Edition of *Horizons*

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

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Horizons is the monthly newsletter (except for the months of July and August) of the Houston Section of the American Institute of Aeronautics and Astronautics. It is created by members of the Houston Section and reproduced at the Houston Offices of Lockheed Martin. Opinions expressed herein, other than by elected Houston Section Officers, are those of the authors and do not necessarily represent the position of AIAA or the Houston Section. Please address all correspondence to the Houston Section Chairman, Darby Cooper. Phone 281-461-2620; e-mail DCooper@klsiemens.jsc.nasa.gov.

Chair's Corner

The Houston Section is off to a fast start in the new year – and already the calendar is brimming with events!

On January 26th, the Houston Section was pleased to host the very first Regional Public Policy Colloquium. This is an exciting new event that involved representatives from all of the sections in Region IV (Texas, Oklahoma, New Mexico, and Arizona) gathering to discuss how AIAA can work to inform government leaders on issues that affect the aerospace industry. This event is a key preparation for Congressional Visit Day coming up in March.

Behind the scenes, the Executive Council is working hard on one of our primary goals for this year – improving our communication with the membership. This is a comprehensive effort that addresses how we make information available to the membership both electronic (web and email) and print. Some of the changes have already been implemented, but more are on the way – stay tuned! If you would like to be involved in this effort, please feel free to contact me.

We are also continuing our excellent record of educational events. E-week is just around the corner – and the section is supporting the efforts of the JSC community to reach out to local schools. We are again sponsoring the Future City Competition – an exciting opportunity for students to learn about math, science, and advanced planning.

I almost forgot – we have a new face to welcome. Sophia Bright has relinquished her duties as Membership Chair to fill the position of Vice-Chair of Operations position. Mr. Henry Schmidt has joined the Executive Council as the new Membership Chair. I'm excited about this new addition to our leadership, and am sure that many good things are in the works!

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 any of the executive council members or me

Humans in Space: Is the Cost Too High?

By Jonathan Coopersmith, Guest Contributor

The latest overruns for the space station combined with the Bush administration's desire to reduce spending on an area it considers a low priority may once again revive the question of manned versus unmanned space exploration and exploitation. The argument has existed for decades. Boiled down to basics, it is: "What is the best use of resources?" Unmanned satellites and probes cost far less than manned missions. Putting people in space, however, is far more exciting and leads to greater understanding of an environment which humanity will inevitably expand fully into.

The debate is rarely black and white – advocates of both courses acknowledge the attraction and need of the other. In an ideal world, resources would not be limited, but we do not live in an ideal world. Unmanned advocated particularly fear – with much evidence from shuttle and space station experience – that manned flight diverts resources from unmanned missions, especially to handle cost overruns. A concern with the ISS (though appropriate for all stations) is that science will take a back seat to basic operations; furthermore, much research can be done easier without the station.

Mr. O'Keefe must have knowledge of the key issues that are plaguing NASA. He must be aware that a crew escape module is the number one safety upgrade for the Space Shuttle. He should know that to privatize the Shuttle without first automating the flight system would only continue the operation of an obsolete and cost prohibitive launch system. Automation and privatization are also the key to correcting the space station problems.

Perhaps the most telling argument against people in space is that there is no (known) military manned space effort. If the military, with its aegis of "national security" legitimizing spending on a wide range of technologies unaffordable to the civilian market, cannot justify the money to put people in space, who can? The lack of a military human presence in space is not for lack of trying. The history of the space program contains many proposals, including the X-20 DynaSoar, the Manned Orbiting Laboratory (MOL), and space interceptors. Ideas have not been in short supply. Resources have – and various branches of the military have decided that their priorities were better met with unmanned satellites. If the Department of Defense, with a budget of over

\$300 billion cannot afford manned operations, what hope for NASA with its \$13 billion?

The underlying problem is access to and operations in space are still very expensive. To send a pound into orbit costs approximately \$10,000. To send a pound across the Atlantic demands approximately \$3-6, depending on the vagaries of ticket buying.

If a shuttle mission cost \$50 million instead of an order of magnitude more, the manned-unmanned debate would be muted due to affordability. Drastically lowering the cost of space exploration would do more to help the cause of manned space exploration than any other factor.

Mars Settlement Design Competition

By Joy Conrad King, Pre-College Outreach Chair

The NASA Johnson Space Center will be holding an industry simulation game for area high school students on February 22 - 24, 2002. These students will divide into futuristic companies and spend a weekend to prepare a proposal for a fictitious city to be built on Mars. Each company will be composed of approximately 35 students that will be run by one CEO. At the end of the weekend, there will be a competition to select the winning proposal. The competition is open to students, grades 10 – 12 attending a high school in the Southeast Texas area. Space is limited, and the deadline to apply is February 1st.

Students can check with their Math/Science coordinator at their school for applications or they can contact Norm Chaffee. A few Adult volunteers are still needed so please contact Mr. Chaffee at Norman.H.Chaffee1@jsc.nasa.gov or at 281-483-3777. More information can be found at <http://marsbase.jsc.nasa.gov>

Evolution of Flight Art Contest

By Joy Conrad King, Pre-College Outreach Chair

The Evolution of Flight Campaign will be sponsoring the 2nd annual AIAA Evolution of Flight Campaign Art Contest for children ages 5-16. This year's theme will be "2102: Life in Space". Entries must be original artwork on an 8-1/2" x 11" sheet of white paper (no computer generated or three-dimensional art is eligible). Artwork should be based on the

theme "2102: Life in Space". Imagine that in 100 years, mankind is living in space. Show examples of what you think "Life in Space" would be like – what would your school or home look like, would cars or food be different, what would vacations be like, what kind of pets would you have, or even show how society has benefited by living in space. Use your imagination!

To submit your entry, write your first and last name and age on the front of your entry in the bottom right corner in black marker ink. Have your parent or guardian fill out and sign the AIAA Entry/Parental Contest form and mail the entire package to:

Evolution of Flight Campaign Art Contest
Attn: Kimberly Grant
1801 Alexander Bell Drive, Suite 500
Renton, VA 20191-4344

Contest rules and information (including the Parental Contest form) can be found at http://www.flight100.org/activities/artcontest_2002.html. Winning artwork will be featured on the AIAA Evolution of Flight web site and in other AIAA promotional materials. Prizes will be awarded. Deadline for submissions is **1 March 2002**.

Volunteer Judges Needed!

By Joy Conrad King, Pre-College Outreach Chair

AIAA will be giving out its sponsored awards at the Science Engineering Fair of Houston in the Astroarena on Friday March 22nd. If you would like to be a judge contact Joy Conrad King at (281) 480-4101 jconrad@averstar.com

Welcome New Membership Chair

By Henry J. Schmidt, Membership Chair

A heartfelt greetings to you all. Aloha. Saludos. Grütsie. Gruss. Mabuhay. No matter what language you speak, I am happy to be here in Houston.

I am Henry J, the newly appointed Membership Vice-Chair for the Houston Section of AIAA. I transferred to Houston, TX from Orange County (Seal Beach, CA). I am a Senior member of AIAA and I belonged to the Orange County section of AIAA where I served as Membership Vice-Chair, then as Career Enhancement Vice-Chair.

Any Wildcats around? I graduated from the University of Arizona with BS in Civil Engineering in 1978. My 23+ year career started with Rockwell, and then with Boeing, after the takeover of the Rockwell Space Division in 1997. If you are not aware, Boeing is transferring the Huntsville and Southern California "Space" personnel here to Houston. So, I came from Seal Beach, CA to Houston to support the International Space Station effort.

My experience is broad in nature. Currently, I am a Senior Engineer/Scientist for the International Space Station, Extravehicular and Crew Systems Department, Extravehicular Activity group. I did a similar type of function in Huntington Beach on the US Propulsion Module. There I was introduced to the awesome world of EVA worksite analysis.

I have been characterized as a "global thinker". I started as a structural designer, but then spent most of my career in Advanced Programs. I like to use the Systems Engineering approach to solving problems. I have contributed to Space Station, commercial satellites (including utilizing Sea Launch), the Brilliant Eyes Program, DoD Programs, Manned Mission to Mars/Back to the Moon Program, Orbital Boosters, Shuttle Orbiter Modifications, and the Shuttle Orbiter Aft Fuselage.

My hobbies and interests include travel, golf, tennis, hockey, southern cooking, home PC, technical knowledge & skill advancement, trivia, and some foreign languages (Spanish, German (really survival German), and some Sign).

As an AIAA member, I have come to realize the importance of the AIAA society in the "Space" community. This organization is the best avenue to get up-to-the-minute, latest technology issues and results in our field. The technical journals are superb and we keep our associates and members informed.

AIAA is a valuable source of technical data, valuable symposia's, and an avenue to meet others of various fields and disciplines. I am proud to be a part of it, and to contribute where I can. Please join me in getting the word to others, and let's make the Houston Chapter flourish in the upcoming years.

If this is the first AIAA newsletter you have seen, and you are not currently a member, I invite you to become a member, get involved, and meet your compatriots. You will have fun. You will not go wrong. I guarantee it. Also, feel free to give me a call or to introduce yourself at a meeting.



FIRST Robotics Competition Update

By Joy Conrad King, Pre-College Outreach Chair

The 2002 FIRST Robotics Competition kick-off was on January 5, 2002, and the teams are off running. The game was announced from FIRST headquarters in Manchester, NH, and the high school students now have 6 weeks to build a functioning robot to compete in local and national competitions. This year's competition is called 'Zone Zeal' and is proving quite changeling. The robots have two minutes to put soccer balls in a moveable goal then finish with their robot and the goals in opposite zones on the field for points. Since there are three other teams on the field at the same time, more pulling and pushing is expected this year and robot strength is part of the strategy.

If you would like to see the local robot teams in action, several of them are competing in the Lone Star Regional Competition March 14-16th at the Astroarena. Admission is free but there may be a charge for parking. More information is available at <http://www.usfirst.org>.

National Engineers Week: February 17-23, 2002 Activities Roundup

Provided by the National Society of Professional Engineers

National Engineers Week is celebrated annually by thousands of engineers, engineering students, teachers, and leaders in government and business. Increasingly, National Engineers Week has focused on sharing the importance of engineering with young people. The sooner young people consider engineering as a viable career option, the earlier they can begin to make educational choices -- such as taking sufficient math and science courses in middle and high school -- that will allow them to pursue engineering and technical studies in college.

- **ZOOM into Engineering**, aimed at 6- to 11-year-olds, is a new program designed in conjunction with the popular PBS television show "ZOOM" that ex-

plores many fascinating facets of science and engineering

- **Introduce a Girl to Engineering Day**, now in its second year. The program has the support of more than 100 organizations that hope to mobilize at least 10,000 women engineers who, with their male colleagues aim to reach one million girls.

- The **National Engineers Week Future City Competition**[™], entering its 10th year, expands from 25 to 29 regions across America. The competition asks middle school students, working under the guidance of teachers and volunteer engineers, to build computer and three-dimensional scale models of cities of tomorrow. For more information, visit www.futurecity.org.

- **"Sightseers Guide to Engineering"** at www.engineeringsights.org, celebrates all things engineering in all 50 states. It encourages the public to recognize the engineering achievements around them and understand their importance in everyday life.

- The National Academy of Engineering will present the \$500,000 **Charles Stark Draper Prize**, the profession's highest honor for engineering achievement and innovation. A new prize, the \$500,000 **Bernard M. Gordon Prize for Innovation in Engineering and Technology Education**, will also be awarded. For more information about the NAE and its prizes, visit www.nae.edu/awards.

- The **Chinese Institute of Engineers (CIE/USA)**, joining National Engineers Week as a sponsor in 2002, will announce the Asian American Engineer of the Year at an award banquet on Saturday, February 23. This is the first national level award program to be sponsored by the Institute in conjunction with National Engineers Week.

- www.discoverengineering.org, educates middle school students with information about what engineers do and how to become one.

- A **Drive-Time Radio Tour**, featuring a spokesperson from the ASCE will be broadcast in dozens of cities across the country during National Engineers Week.

- **Discover "E,"** a nationwide program of 40,000 engineers helping more than five million elementary, junior and senior high school students discover practical applications of math, science and technology with hands-on activities.

- **Engineering Goes Public** where hundreds of libraries, science/technology centers, engineering project sites, and local malls host **Engineering Day**

to educate the public during National Engineers Week.

- **National Technological University** sponsors the "Discover Engineering!" telecast on Wednesday, February 20 from 1:00 to 2:00 PM Eastern. More information is at www.ntu.edu/de2002.

E-Week 2002 Volunteers Needed

By Darby Cooper, Chair

Local E-week activities are coordinated by the NASA/JSC Education and Student Programs Office. They have an on-line registration forms for engineers who would like to participate found at: <http://education.jsc.nasa.gov/internal/volunteer.htm>. You may also contact JSC's National Engineers Week Coordinator, Anne Roemer, at (281) 483-2929

Help AIAA Help You - Update Your Member Records!

By Henry Schmidt, Membership Chair

It is often said that the aerospace industry is the only place where you can have the same job for five years and work for five different companies. That is especially true given the industry wide consolidation that has happened in the last few years. As companies have changed so have the building signs and the business cards. Additionally, our environment provides most people with the ability to move from one company to another as we try to expand our occupational horizons.

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 contact the Houston Section Membership Chair if you have questions regarding your membership.

We are currently transitioning our Membership Chair position so you may either contact me, Sophia Bright, at 281-461-9300, Ext. 234, or you can contact our new section Membership Chair, Henry Schmidt at 281-244-4629. If you prefer to contact us by e-mail our addresses are sbright@tietronix.com and henry.j.Schmidt@boeing.com, respectively.

2nd YP Career Planning and Development Workshop

By David Lechner, Councilor

The AIAA Houston Section is hosting the second Career Planning and Development Workshop for young professionals on February 16th, 2002. This half day workshop will offer sessions in financial planning, career mapping, conflict management, balancing life styles, business etiquette, career options in uncertain times, time management and improving interpersonal skills. A special guest speaker will end the workshop after lunch with an exciting and motivational talk.

Like the first successful career-planning workshop held in May 2001, attendees at this workshop will have the freedom to attend sessions of their choice. Several local professional organizations, representative of the NASA/JSC professional community, will also sponsor information and membership booths. The career-planning workshop will be held in the USA Training Academy. Due to limits on facilities, registration will be limited to 85 attendees. Registrations are needed by February 6. See details at <http://www.jsc.nasa.gov/aiaa/CPAD2002/>

AIAA will also be hosting a similar career-planning workshop for mid-level managers in the near future. Contact David Lechner at 281-483-1685 or david.f.lechner1@jsc.nasa.gov for any questions.

Welcome New Members!

By Sophia Bright, Vice-Chair Operations

On behalf of the Houston Section of AIAA, I would like to recognize and welcome several new and long-standing members to the Houston Section.

Mr. Christopher S. Allen	Mr. Edward McCants
Mr. Roberto J. Alonso	Mr. Jonathan A. Medina
Mr. Darryl L. Archer	Mr. Kevin M. Meehan
Mr. Jason Berrio	Mr. Jeffrey B. Metzgar
Mr. John Balcerowski	Mr. Pdraig Moloney
Mr. Mark R. Blanton	Mr. Todd A. Nadeau
Ms. Sangeeta Bokadia	Dr. George C. Nelson
Ms. Roshawn E. Bowers	CDR Lisa M. Nowak
Mr. Chad C. Brewer	Mr. Richard J. Otto
Mr. Matthew C. Broaddus	Mr. Albert M. Passy
Mr. Brandon M. Cain	Ms. Sandra B. Pitzak
Mr. Larry L. Chien	Mr. Kevin E. Post
Mr. Andrew W. Curtis	Mr. Gregory S. Prichard

Mr. Pat Daily	Dr. Joe W. Pyle
Mr. Ryan W. Deal	Mr. Carlos Ramos
Mr. Danny G. Ewing	Mr. Fredrik Rehnmark
Miss Kristi L. Ferber	Mr. Brian G. Salinas
Mr. Jeff M. Froemming	Mr. Christian D. Schmelebeck
Mr. Samuel F. Galls	Ms. Sarah E. Schomburg
Ms. Sarah R. Graybeal	Mr. Carl M. Schwarzbach
Mr. Lawrence C. Griffin	Mr. Surya U. Shandy
Mr. Keelan A. Hamilton	Ms. Sharmila D. Singh
Mr. Corbett R. Hoeninger	Miss Pamela M. Solano
Ms. Katie A. Jacikas	Mr. Joseph Thibodaux
Mr. Espen S. Johansen	Mr. Joel E. Townsend
Mr. Kyle W. Jones	Mr. Jason T. Vice
LCDR Monte S. Jones	Mr. Ayman H. Wafai
Dr. Jim L. Jordan	Mr. Zachary O. Watson
Mr. Reza Jou	Mr. Curtis B. Webb
Mr. Anup B. Katake	Mrs. Carol L. Webber
Mr. Satyajit M. Ketkar	Mr. Michael W. Weeks
Mr. KPO Kim	Mr. Gengsheng Wei
Dr. Janice T. Larson	Mr. Scott C. Wenger
Mr. Sunil Lakshmiopathy	Mr. Neil W. Woodward
Ms. Tanya Lippincott	Mr. Richard J. Ybarra
Mr. Brian Lund	Mr. Ian C. Young
Ms. Linda Martin	Mr. Mariusz P. Zaczek
Mr. Ben Mason	

Welcome again to the Houston Section! If any of you would like to find out more about the organization please feel free to visit the section website at <http://jsc.nasa.gov/aiaa/>. Additionally there are a number of activities that we sponsor throughout the year and we encourage the participation of all of our members not only from the aspect of attending the activity, but also in planning and coordinating the activity.

If you have any ideas for activities or services you would like to see from this section please feel free to pass that information on to us. If you have specific Membership questions please feel free to the section Membership Chair. We are currently transitioning our Membership Chair position so you may either contact me, Sophia Bright, at 281-461-9300, Ext. 234, or you can contact our new section Membership Chair, Henry Schmidt at 281-244-4629. If you prefer to contact us by e-mail our addresses are sbright@tietronix.com and henry.j.Schmidt@boeing.com, respectively.

Becoming an AIAA Member or Renewing Your Existing Membership

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 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 have any questions regarding any of the items addressed above please feel free to call AIAA National customer service number listed earlier. We are currently transitioning our Membership Chair position so you may either contact me, Sophia Bright, at 281-461-9300, Ext 234, or you can contact our new section Membership Chair, Henry Schmidt at 281-244-4629. If you prefer to contact us by e-mail our addresses are sbright@tietronix.com and henry.j.schmidt@boeing.com, respectively.

Space Day 2002 May 2

By Steve King, Counselor and Publicity Chair

May 2nd has been set for the sixth annual Space Day 2002, which is a global celebration dedicated to the extraordinary achievements, benefits, and opportunities in the exploration and use of space. This year's activities will feature the exploration of Mars. Space Day 2002 educational initiatives include:

- Design Challenges: Requires students to use creative problem solving, critical thinking skills, and teamwork to find solutions to real challenges encounters by people living and working in space. March 1st is the deadline for Design Challenges submissions.
- Cyber Space Day: Will be held May 2nd and feature a link-up with schools, museums, and science centers worldwide via a live webcast from the Smithsonian's National Air and Space Museum that will be broadcast on the Internet and via satellite. The webcast will feature interviews and astronauts, scientists, and space experts who will be on hand to answer students' online questions.
- Student Signatures in Space: Allows students to send their signatures into space on a future Space Shuttle mission.

For more ideas and Design Challenges information, visit www.spaceday.com.

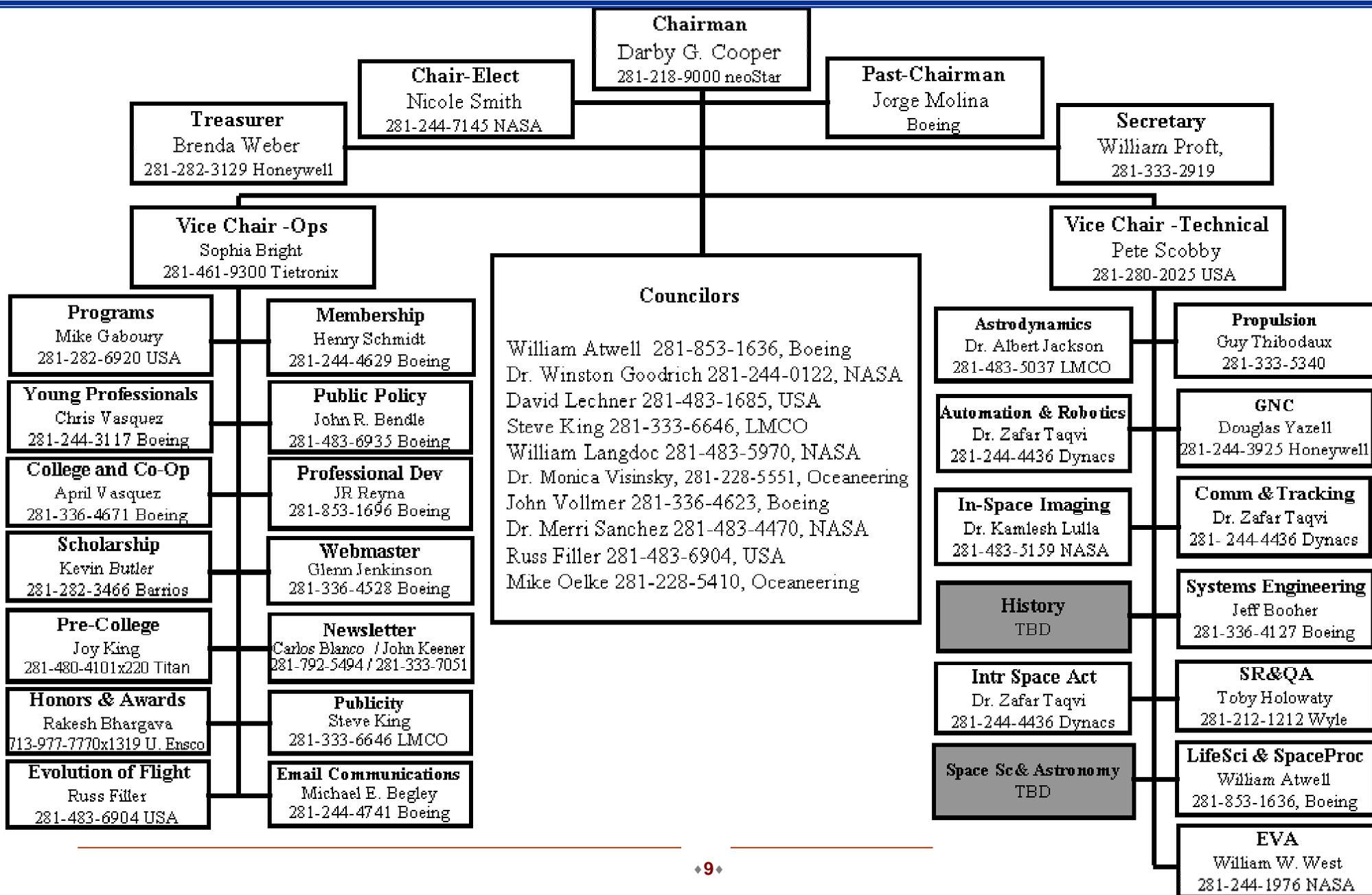
Spaceflight Project Seeks Volunteers

Contributed by Steve King, Counselor and Publicity Chair

Every thought of becoming a hands-on "rocket designer"? This may be your chance if you have some time to volunteer. The Amateur Spaceflight Association is a JSC community, non-profit group attempting to capture a World's Record by launching the first amateur rocket into space. Their goal is to lift a 15 pound payload to an altitude of 80 miles, thus breaching the boundary of "space" defined as 100 km or 50 miles (European and NASA standards, respectively). The current design stats:

- 8,000 lb thrust LOX/Kerosene motor burning for 30-35 seconds.
- Vehicle is approximately 16" dia and 32 ft tall.
- The vehicles max velocity will reach Mach 5 at about 50k ft, and will glide to apogee.
- Attain 4-5 minutes of "zero-gravity".
- Hope to get the entire 650 lb vehicle (dry wt) back from 80 miles.

The payload is unnamed at this point. There are currently 10 active members in the group, but they are in need of people with experience or interest in various areas (e.g., structures/thermal, propulsion). If interested, contact Robert Morehead (281-244-5670, robert.l.morehead1@nasa.jsc.gov) directly for further details.



Calendar of Events

February 2002

2/16 Young Professionals Career Planning and Development Workshop

- This half day workshop will offer sessions in financial planning, career mapping, conflict management, balancing life styles, business etiquette, career options in uncertain times, time management and improving interpersonal skills.

2/17 – 2/23 National Engineers Week

- Visit classrooms around the Houston area.

2/21 Aging Aircraft (sponsored jointly by ASME)

- Part of the Section's Dinner Lecture Series; will cover the modes, causes, effects of aging on aircraft, as well as possible means to arrest this phenomenon.

2/22 – 2/24 Mars Settlement Design Competition

- Industry simulation weekend for high school students to design a futuristic Mars community.

March 2002

3/28 Nanotube Technology

- Part of the Section's Dinner Lecture Series; will cover the evolution, development and applications of this emerging technology.

3/21 - 3/23 Science and Engineering Fair of Houston

- Judge middle and high school projects to select the AIAA Houston Section prizewinner.

3/14 - 3/16 FIRST Robotics Lone Star Regional Competition

April 2002

4/24-28 FIRST Robotics Nationals

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

- Austin, Texas

May 2002

5/2 Space Day

5/14 – 5/17 Space Mechanisms Technology Workshop

- Ohio Aerospace Institute, Cleveland, Ohio. 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.

TBD Global Air and Space 2002 Conference

- Washington, D.C.

TBD WAR 2002

TBD Innovations 2002

June 2002

TBD AIAA Houston Section Annual Awards Banquet

October 2002

10/11 – 10/20 World Space Congress 2002

- George R. Brown Convention Center, Houston. Event is billed as the "meeting of the decade for space professionals."

See the AIAA Houston Section website at <http://www.jsc.nasa.gov/aiaa> for more information on any of these events.



Houston Section

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