



Welcome to NIAC's

Phase I

Fellows Meeting

*“Creativity and imagination are not
but necessities.”*

NIAC's Focus:

Revolutionary concepts for systems and architectures that can have a major impact on future missions of NASA, 10 to 40 years into the future.



NIAC's Method:

Provide a pathway for innovators with the ability for non-linear creativity to explore revolutionary solutions to the grand challenges of future aerospace endeavors.

What is Revolutionary?

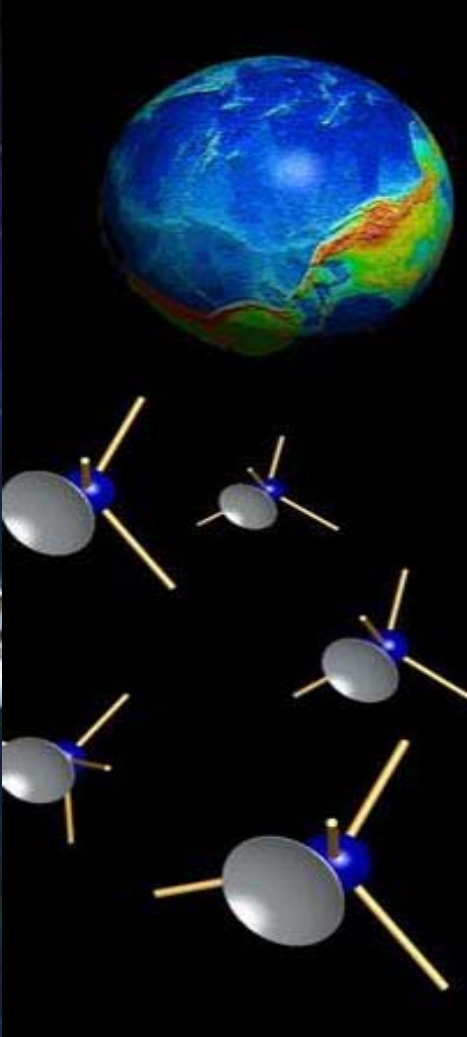
“Don't let your preoccupation with reality stifle your imagination.”

Robert A. Cassanova and Sharon M. Garrison

- The genius is in the generalities, and not the details.
- The new idea illuminates a pathway towards a significant expansion of knowledge.
- It inspires others to produce useful science and further elaboration of the fundamental idea.
- It contributes to a major change in the framework of aerospace possibilities.
- It triggers a transformation of intuition.
- Revolutionary paradigm shifts are often simple, elegant, majestic, beautiful and are characterized by order and symmetry.

There is a subtle yet significant difference between a creative and credible imaginative concept, and an imaginary pursuit.

Robert A. Cassanova, Ron Turner, Pat Russell



Fellows of the Institute

-Phase I awards of approximately \$50,000 to \$75,000 will be granted for six months to validate the viability of the proposed concept and define major feasibility issues.

-Phase II awards up to \$400,000 will be granted for 18 to 24 months.

Proposals received to date: 716

Awards to date: 118

Student Fellows of the Institute

All expenses paid for students to attend NIAC meetings and to present posters and papers describing their concept plus a small monetary award



NIAC Phase I Fellows Meeting

- **Keynote Speakers**
- **CP 02-02 Phase I NIAC Fellow Status Reports**
- **Student Fellow Status Reports**
- **Poster Session for Recent Student Fellow Selectees**

And Time For Imagination-Stretching



Keynote Speakers -- Schedule Change

**Tuesday,
March 23**

Perspectives on Propulsion for Future Space Missions

Jerry Grey

Changed from Wednesday afternoon

Aerospace Consultant

Development Process for the Space Elevator

Bradley Edwards

Director of Research

Institute for Scientific Research

**Wednesday,
March 24**

Propulsion and Power with Positrons

Kenneth Edwards

Director

Revolutionary Munitions

Air Force Research Laboratory

Mars Program Update

James A. Garvin

Changed from Tuesday morning

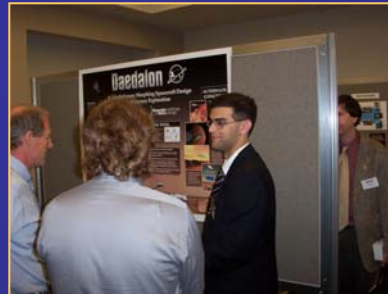
NASA Lead Scientist for Mars Exploration

Office of Space Science

NIAC

NIAC Student Visions of the Future Program

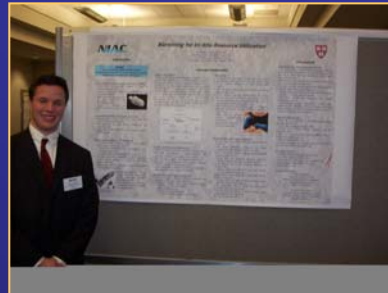
Student Fellows Selected - September 2003



"Daedalon: A Revolutionary Morphing Spacecraft Design for Planetary Exploration"

Jarret M. Lafleur

Georgia Institute of Technology



"Biomining for In-Situ Resource Utilization"

Darin Ragozzine:

Harvard University



"Verde Base (A Lunar Greenhouse)"

Kam Yee

University of Washington, Bothell

Student Fellows Selected – February, 2004



"Ramjet Statoreactor"

Florin Mingireanu
Louisiana State University
Advisor: Prof. Ed Seidel



"Collectible Projectosats"

Darin Ragozzine and Frank White
Harvard University
Advisor: Dr. Sarah Stewart



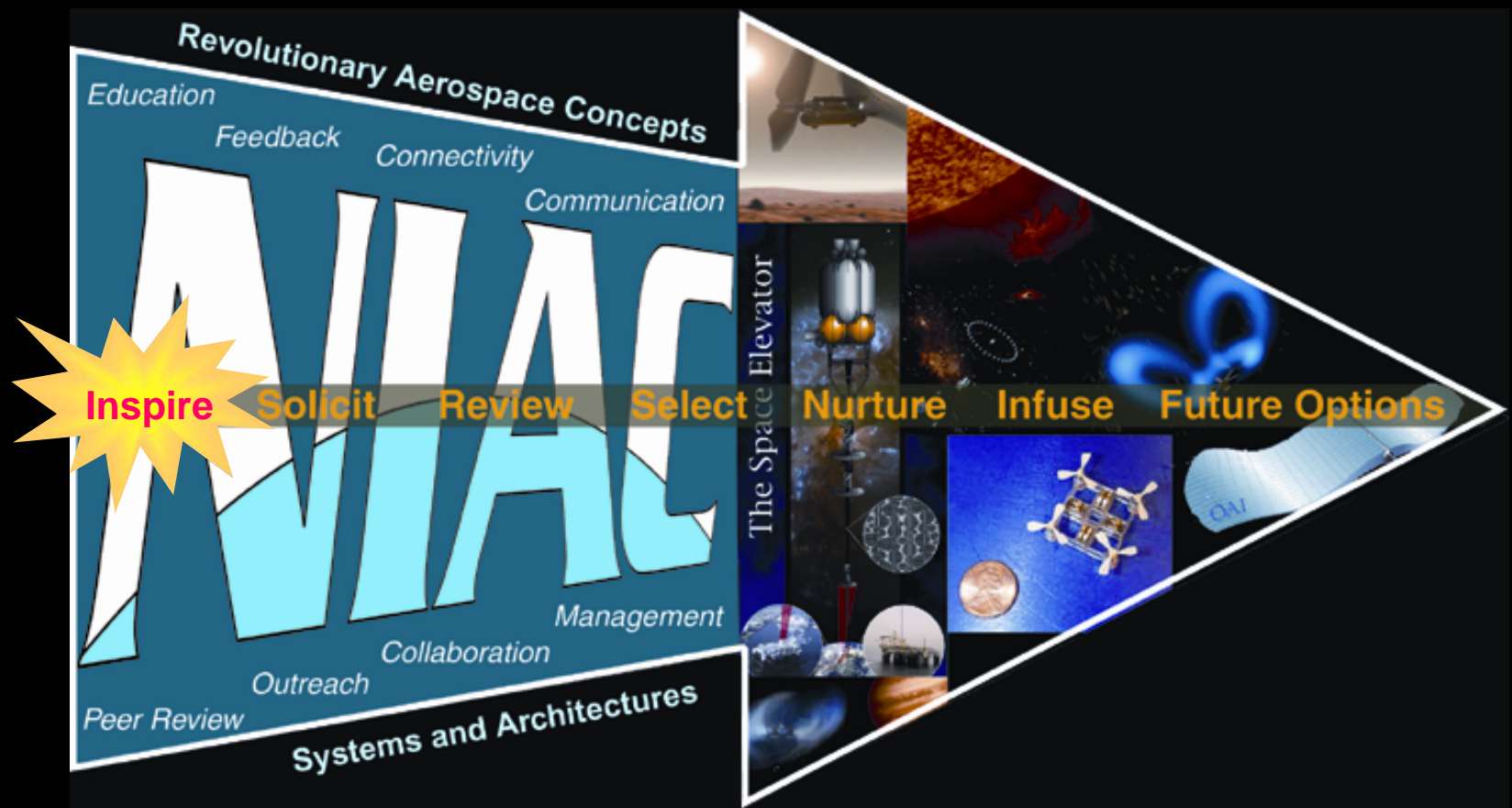
"The Origin of Life and Spaceflight Biospherics: In Situ Free Radical Polymerization Processes for Space System Applications"

Zach Adam
University of Washington
Advisor: Dr. Adam Bruckner



"Global System for Monitoring Earth Radiation Balance"

Ken Van Dyken, Joel Eigege, Paul Sokomba and Dan Mouw
Calvin College
Advisor: Prof. Matthew Heun



- Seminars at universities, industries and public associations
- Lectures for K-12 students
- Active participation and outreach with technical societies
- NIAC Annual Meetings, Fellows Meetings and Workshops



- Peer review process validated by NRC Panel
- Each proposal reviewed by 3 reviewers from outside of NASA



- NIAC Director assisted by review panel with prioritization of awards
- Concurrence by NASA HQ
- Contracts issued by USRA



- Active exposure through the NIAC website
- Briefings to NASA HQ and Centers
- Site visits with Phase II contractors to encourage follow-on funding



- **Actively seek follow-on funding for post Phase II development for most promising concepts**

Important Future NIAC Activities and Deadlines

Next NIAC Meeting:

Annual Meeting in October 2004

Due Date for Next Phase II Call for Proposals:

April 30, 2004

Due Date for Next Phase I Call for Proposals:

May 31, 2004

Next Student Competition:

**To be announced in April 2004 with
due date in September 2004**

NIAC SCIENCE COUNCIL

Dr. Charles Bowden
U.S. Army Aviation and Missile Command

Dr. John Evans
Consultant

Dr. Lynda Goff
University of California at Santa Cruz

New Member

Dr. Bruce Jakosky
University of Colorado

Dr. Keith Raney
Johns Hopkins University

CHAIR

Dr. Donna Shirley, Chair
Science Fiction Museum

Parker Stafford
Consultant

New Member

Dr. Jack Stuster
Anacapa Sciences Incorporated

Dr. Robert Whitehead
National Institute of Aerospace