



NASA Institute for Advanced Concepts



NIAC PHASE I FELLOWS MEETING

March 6-7, 2007

LOCATION:

Technology Square Research Building
85 5th Street NW, Atlanta, GA

NIAC CONTACT:

Mr. Dale Little, (404) 347-9633
dkl@niac.usra.edu



NIAC Phase I Fellows Meeting Agenda

Tuesday, March 6, 2007

- 8:00 AM -8:30 AM** **Registration / Continental Breakfast**
- 8:30 AM -9:00 AM** **Welcome and Status of NIAC Activities**
Robert A. Cassanova, NIAC Director
- 9:00 AM -10:20 AM** **NIAC Phase I Status Reports**
- (40 minutes) Plasma Magnetic Shield for Crew Exploration
John Slough, University of Washington
- (40 minutes) Bio-electric Space Exploration
Matthew Silver, Intact Labs
- 10:20 AM -10:50 AM** **Break**
- 10:50 AM-12:20 PM** **NIAC Phase I and Student Status Reports (continued)**
- (25 minutes) The Martian Bus Schedule: An Innovative Technique for Protecting Humans
on a Journey to Mars
Daniella Della-Guistina, University of Arizona
- (40 minutes) Development of a Single-Fluid Consumable Infrastructure for Life
Support, Power, Propulsion, and thermal Control
David Akin, University of Maryland
- (25 minutes) Evolution of a Scalable, Hovering Flapping Robot
Floris van Breugel, Cornell University
- 12:20 PM-1:30 PM** **Buffet Lunch**
- 1:30 PM-2:30 PM** **Keynote Speaker : *Dr. Paul Spudis***
Johns Hopkins University Applied Physics Laboratory
- 2:30 PM-3:10 PM** **NIAC Phase I and Status Reports (continued)**
- (40 minutes) Reduction of Trapped Energetic Particle Fluxes in Earth and Jovian
Radiation Belts
Robert Hoyt, Tethers Unlimited
- 3:10 PM -3:40 PM** **Break**
- 3:40 PM-4:45 PM** **NIAC Phase I and Student Status Reports (continued)**
- (25 minutes) START: Utilizing Near-Earth Asteroids with Tether Technologies
Jonathan Sharma, Georgia Institute of Technology
- (40 minutes) In-Orbit Assembly of Modular Space Systems with Non-Contacting, Flux-
Pinned Interfaces, Mason Peck, Cornell University
- 4:45 PM-5:30 PM** **Discussion**
- 6:00 PM-7:30 PM** **Reception to honor Robert Cassanova on his retirement
at the Georgia Tech Hotel & Conference Center.**



NIAC Phase I Fellows Meeting Agenda

Wednesday, March 7, 2007

- 8:00AM - 8:30 AM** **Registration / Continental Breakfast**
Welcome - Robert Cassanova, NIAC Director
- 8:30AM - 9:30AM** **Keynote Speaker** : *Dr. Ronald Turner*
"Grand Challenges in Space Radiation Protection"
- 9:30 AM-10:30 AM** **Panel on Funding Opportunities Beyond NIAC**
Moderator: Bob Scaringe- AVG Communications
Panelists: George Petracek- Atrium Capital, Rahul Saxena- Seraph Group
Paul Eremenko- Booz Allen Hamilton, Seth Potter- Boeing (unconfirmed)
- 10:30 AM -11:00 AM** **Break**
- 11:00 AM-12:20 PM** **NIAC Phase I Status Reports**
- (40 minutes) Extreme eXPeditionary Architecture (EXPArch): Mobile, Adaptable Systems for Space and Earth Exploration
Guillermo Trotti, Trotti and Associates
- (40 minutes) Self-Deployed Space or Planetary Habitats and Extremely Large Structures
Devon Crowe, PSI Corporation
- 12:20 PM-1:20 PM** **Buffet Lunch**
- 1:20PM-3:05 PM** **NIAC Phase I Status Reports**
- (40 minutes) Primary Objective Grating Astronomical Telescope
Tom Ditto, DeWitt Brothers Tool Company
- (25 minutes) Advanced Grazing Incidence Neutron Imaging System
J. Michael Burgess, University of Alabama, Huntsville
- (40 minutes) Large Ultra-Lightweight Photonic Muscle Telescope
Joe Ritter, University of Hawaii
- 3:05 PM-3:35 PM** **Break**
- 3:35 PM-5:20 PM** **NIAC Phase I and Student Status Reports**
- (40 minutes) Practicality of a Solar Shield in Space to Counter Global Warming
Roger Angel, University of Arizona
- (25 minutes) The Road to Mars
Rigel Woida, University of Arizona
- (40 minutes) Spacecraft Propulsion Utilizing Pondermotive Forces
George Williams, Ohio Aerospace Institute
- 5:20 PM-5:30 PM** **Open Discussion**
- 5:30 PM** **Adjourn**



Registration for NIAC Phase I Fellows Meeting

General Information

The workshop will be held on March 6-7, 2006 at the Technology Square Research Building in Atlanta, GA. A map to the meeting site and hotel is attached. Note that the Technology Square Research Building is adjacent to the building in which NIAC Headquarters is located. In order to attend, NIAC must receive a completed registration form by **February 26, 2007**. There is no fee to attend the meeting but you must register so that we will have an accurate count for meals and snacks.

Registration

Registration may be accomplished electronically (preferred), by mail or by fax. Please provide the following information to Dale Little at the email address listed below by **February 26, 2007**.

Name

Affiliation

Address

Phone Number

Email Address

Days attending the meeting: March 6 _____ March 7 _____

Send registration to: Mr. Dale Little
 dkl@niac.usra.edu
 (404) 347-9633 (voice)
 (404) 347-9638 (fax)

Lodging

NIAC has obtained the special lodging rate of \$129 per night plus taxes for meeting attendees from the following hotel near the meeting site.

Reservations based on availability. Reference NIAC-NASA Institute for Advanced Concepts:

Marriott Midtown Courtyard
1132 Techwood Drive
Atlanta, GA 30318
404-607-1112

Limited rooms available. Cut-off date is February 9, 2007. Reference NIAC Fellows Meeting.

You are responsible for the cost of your room.
Be sure to let the hotel know which nights you are staying.

KEYNOTE SPEAKERS:



DR. PAUL D. SPUDIS

Dr. Spudis is Principal Professional Staff at the Johns Hopkins University Applied Physics Laboratory. He received his education at Arizona State University (B.S., 1976; Ph. D., 1982) and at Brown University (Sc.M., 1977). His research focuses on the processes of impact and volcanism on the planets. He has served on numerous NASA committees and panels and on the Committee for Planetary and Lunar Exploration (COMPLEX), an advisory committee of the National Academy of Sciences. In 1990-1991, he was a member of the Synthesis Group, a White House panel that analyzed a return to the

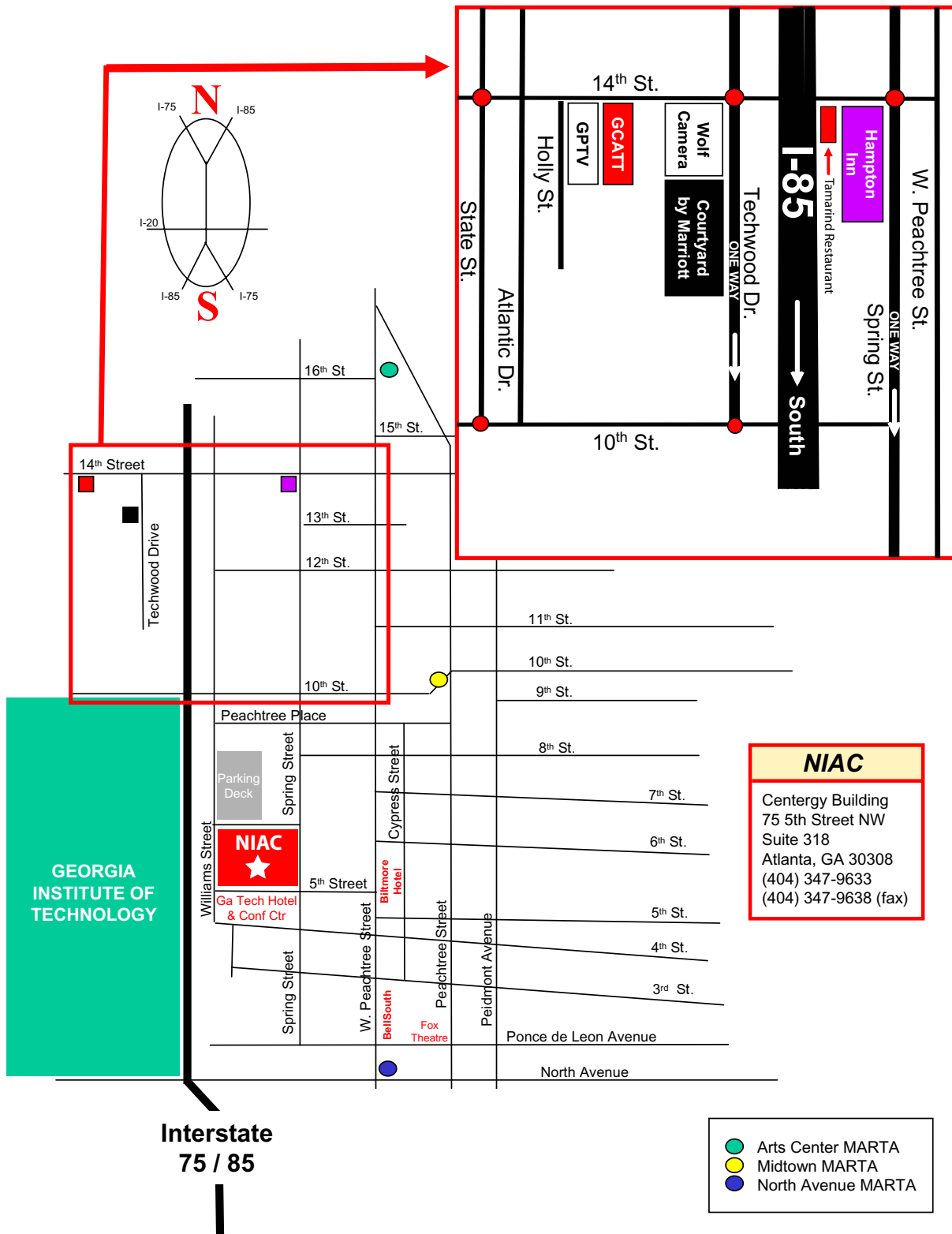
Moon. He was Deputy Leader of the Science Team for the Department of Defense Clementine mission to the Moon in 1994 and is the Principal Investigator of an imaging radar experiment on the Indian Chandrayaan-1 mission, to be launched to the Moon in 2008. In 2004, he was a member of the President's Commission on the Implementation of U. S. Space Exploration Policy and was presented with the NASA Distinguished Public Service Medal for that work. He is the recipient of the 2006 Von Karman Lectureship in Astronautics, awarded by the American Institute for Aeronautics and Astronautics. He is the author or co-author of over 100 scientific papers and four books, including *The Once and Future Moon*, a book for the general public in the Smithsonian Library of the Solar System series, and (with Ben Bussey) *The Clementine Atlas of the Moon*, published in 2004 by Cambridge University Press.



DR. RONALD TURNER

Dr. Turner has more than 26 years of experience in space systems analysis. In addition to his role as Senior Science Advisor to the NASA Institute for Advanced Concepts (NIAC), Ron is an internationally recognized expert in radiation risk management for astronauts, particularly in response to solar storms. For the past eight years he served as Principal Investigator on NASA research grants investigating risk management strategies for solar particle events during human missions to the Moon or Mars. He is a Participating Scientist on the Mars Odyssey program, where he is working with radiation measurements from Odyssey instruments orbiting Mars. He

is a member of the National Research Council (NRC) Committee on Solar and Space Physics and the NRC Committee for the Evaluation of Radiation Shielding for Space Exploration. He previously served on NRC Committees looking at space radiation hazards and the vision for space exploration (results published in October 2006) and precursor measurements necessary to support human operations on the surface of Mars (results published in May 2002). Dr. Turner's PhD, from the Ohio State University, is a multi-disciplinary degree covering Nuclear/ Particle/ Astrophysics. He received his Masters and Bachelor's degrees from the University of Florida. He is a member of the American Institute of Aeronautics and Astronautics, the American Geophysical Union, the International Academy of Astronautics, and the American Astronautical Society.



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