

# NEWSLETTER

## Applied Rotary Wing Engineering Helicopter Workshop

### *National Helicopter Training Workshop*

Every year, engineering students come to have a memorable experience at the Applied Rotary Wing Engineering Workshop. This year will prove to be no different, as on June 19-26, 2011 selected students will have a fun and educational week, sponsored by the CT Space Grant Consortium.

This week includes classroom instruction, tours of companies, wind tunnel testing, and competition involving remote control coaxial helicopters that participants build themselves. The classroom education is on aerodynamics, rotorcraft principles, wind tunnel testing, control theory, VTOL and Remote Control aircraft, UAVs, and more. Networking and tours of



KAMAN Aerospace and Sikorsky Aircraft manufacturing, engineering and testing facilities are highlights. The week is capped with an hour long helicopter flight lesson over Hartford!

To learn more about the program check us out on Facebook (Helicopter Workshop)!

### UPCOMING EVENTS

#### Space Expo

March 27, 2011, 10 - 4  
New England Air Museum

#### 2011 Affiliate Retreat

April 11, 2011, 4 - 6  
New England Air Museum

#### Annual Symposium/ Awards Event

April 11, 2011, 6 - 8  
New England Air Museum

#### National Helicopter Workshop

June 19 - 26, 2011  
Central CT State University

### Fall 2010 Award Winners

#### **Faculty Research Grant:**

J. Palladino (Trinity)

#### **Faculty Seed Research Grant:**

H. Blaise (Trinity)

#### **Faculty Curriculum Development:**

W.S. Yoo (Fairfield)

#### **Faculty Travel Grant:**

M. Arico (Univ. of Hartford)

#### **Graduate Fellowship:**

S. Kopac (Wesleyan), T. Tal (Yale)

#### **Industrial Internship:**

A. Clark, A. Lesky, M. Peters, L. Singh (Univ. of Hartford), R. Raj (Fairfield), T. Snipes (SCSU), D. Pittari (CCSU)

#### **Student Project Grant:**

Yale Drop Team

#### **Senior Design Project:**

D. Fama (CCSU), A. Grandin, M. Hernandez, L. Tintin (Fairfield)

#### **Student Travel Grant:**

Moonbuggy Team (CCSU), D. Mittelman (UCONN), A. Clark (Univ. of Hartford)

#### **Undergraduate Scholarship:**

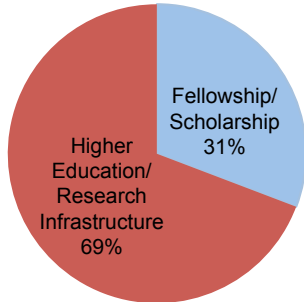
J. Bradford (CCSU), D. Gorka (Univ. New Haven), K. Huang (Trinity), J. Mulhern, R. Snelling (Wesleyan), A.J. Riggs (Yale)

#### **Helicopter Workshop:**

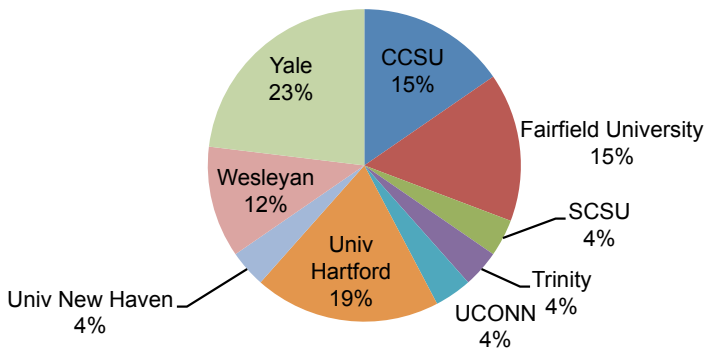
S. Backus, J. Belter, O. Kanner (Yale), R. Raj (Fairfield), L. Singh (Univ. of Hartford), S. Werkheiser (CCSU)

**CONNECTICUT SPACE GRANT STATS**

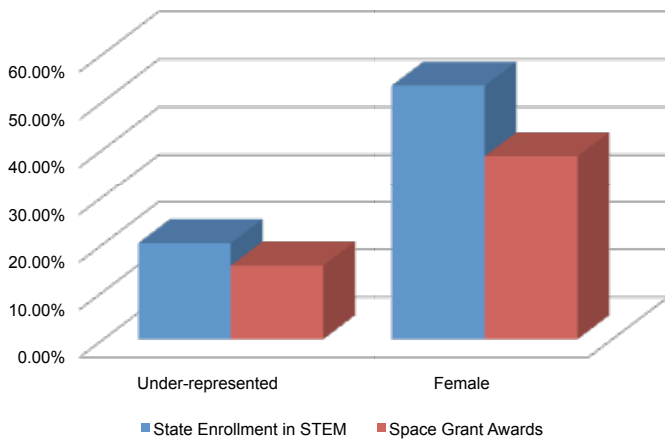
**Fall 2010 Awards**



**Affiliate Distribution**



**Diversity of Student Participants**



**FACULTY SPOTLIGHT:**

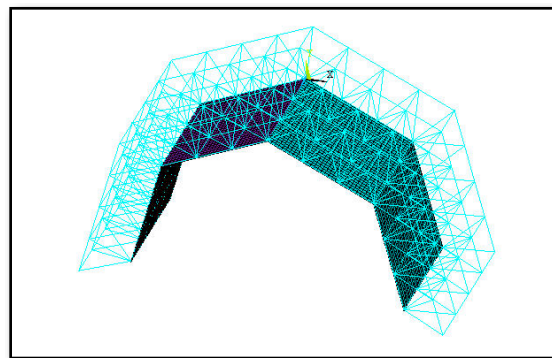
**DR. RAMESH MALLA**

Dr. Malla, an Associate Professor of Civil & Environmental Engineering at the University of Connecticut was the recipient of a CT Space Grant Faculty Research Grant in 2009-2010.

His research project, “*Analysis and Design of a Lunar Base with Regolith (Soil)-Structure Interaction*” investigated static, frequency, and dynamic response of a three-dimensional, frame-membrane composite Lunar structure subjected to an impact load simulating a debris impact. The structure was analyzed using the finite element code ANSYS for four different loading cases: (a)

no internal pressurization and no added regolith mass cover; (b) internal pressurization and no added regolith mass cover; (c) no internal pressurization with added regolith mass cover; and (d) internal pressurization with added regolith mass.

As a result of his research project, he was able to team with Tom Filburn from the University of Hartford and they were able to get a NASA Steckler Phase I grant for continued research on Lunar Habitat Design. In addition to Dr. Malla and Dr. Filburn, 6 students have been involved in this project coming from both universities.



**Above:** ANSYS model of a Lunar structure developed by Dr. Malla of the University of Connecticut.

**VISION STATEMENT**

***Make the United States the Aerospace leader of our solar system.***

**VISION STATEMENT**

***Make Connecticut the national Leader in NASA-related education, research and workforce development.***

**STUDENT SPOTLIGHT: JULIA MULHERN**



Julia Mulhern is a junior Earth and Environmental Science major at Wesleyan University, and one of the recipients of a Fall 2010 Undergraduate Fellowship from the Consortium. Her research is titled “*Surficial Geology on Venus: Determining Deformation Through GIS Analysis of Fold Belt Symmetry*,” and she will be conducting this research this coming summer.

Mulhern’s interest in the subject stems from her interest in geology in general, and a course on planetary geology, which started her thinking and researching about the differences between the geology of Earth and Venus.

Through this project, Mulhern hopes to answer some broad questions about the geology of the planet that have stumped geologists so far. She plans to write her thesis on the subject next fall, and to continue to graduate school with two undergraduate degrees, one in Earth and Environmental Science and one in Science and Society.

In addition to her research and studies, Mulhern plays ice hockey, is on the student athletic advisory committee, and enjoys doing community service.

**UTC SUMMER INTERNSHIP**

Julius Woods, a junior Mechanical Engineering Technology student at the University of Hartford, spent last summer interning at Connecticut Center for Advanced Technology (CCAT) after receiving an award for a UTC summer internship from the Consortium.

His experience involved working with laser application engineers in conducting trials with various advanced lasers for drilling and assisted in collecting data from the testing and evaluation of the results. His goals were to find new and innovative ways to use

lasers and to test various lasers in CCAT’s facilities.

This experience helped Julius tremendously, in that he saw firsthand the importance of, the connections within, and the sheer size of the field of engineering. Prior to his internship, Julius had been considering a change of major, but now he feels that he is where he needs to be, in terms of his career path.

He is very grateful for having been given the opportunity, and claims it was “the perfect way to spend the summer.”

**Academic Affiliates**

- Central Connecticut State University
- Connecticut Community College - Colleges of Technology
- Eastern Connecticut State University
- Fairfield University
- Southern Connecticut State University
- Trinity College
- University of Bridgeport
- University of Connecticut
- University of Connecticut Health Center
- University of Hartford
- University of New Haven
- Wesleyan University
- Yale University

**Industrial Affiliates**

- Pratt & Whitney Aircraft
- Hamilton Sundstrand
- UTC Research
- Sikorsky Aircraft
- UTC Power
- Kaman Aerospace
- GKN Aerospace Services
- HABCO, Inc.
- Otis Elevator
- Carrier

**Non-Academic Affiliates**

- State of Connecticut Department of Education
- Connecticut Science Museum
- Connecticut Corsair Project
- New England Air Museum
- Connecticut Center for Advanced Technology
- Connecticut Pre-Engineering Program
- Connecticut Invention Convention
- Connecticut NASA Educator Resource Center
- Biomedical Engineering Alliance & Consortium (BEACON)



## CT High School Students Selected to Participate in Historic Flight!

### Contact Info

Program Director:  
Dr. Thomas Filburn

Associate Director:  
Dr. Saeid Moslehpour

Assistant Director:  
Dr. Mary "Cater" Arico

Senior Technical Fellow:  
Dr. Bill Cousins

Program Coordinator:  
Ms. Teresa Turner

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A group of seniors from Shelton High School have secured an experiment slot on STS-134, scheduled to launch on April 18<sup>th</sup>, 2011. As part of the Student Spaceflight Experiments Program (SSEP), Leann Misencik, Kayla Russo, Jason Shnipes, Omar Sobh, and James Szabo, with their advisor Mary Clark, have developed an experiment entitled "*Development of Prokaryotic Cell Walls in Microgravity*" which was selected to fly on the final flight of Shuttle Endeavour. The purpose of the experiment is to



observe the effect of microgravity on the development and integrity of the cell wall. The group will study the differences of bacteria grown in the microgravity environment aboard the shuttle, and bacteria grown on Earth, in a controlled environment with standard gravity. After both samples of bacteria have grown for ten days, they will use an electron microscope to observe samples of the bacteria grown in each environment. They will then record any observable differences in cell wall structure.