Education, Outreach and Budget Overview

Center for Radiation Engineering and Science for Space Exploration

(CRESSE)

Dr. Kelvin Kirby, Deputy Director

NASA Technical Review Committee
Reverse Site Visit
Johnson Space Center
August 13, 2009

Education – Student Recruitment and Engagement

PhD Candidates for fall 2009:

Denedra Woods: Electrical Engineering (Electronics and Dosimetry)
Paul Portier: Electrical Engineering (Electronics and Detectors)
Candidate 3 (From two permanent residents with Physics and EE backgrounds)

Master Students fall 2009:

Eugene Bacon……Radiation Test Bed Development and Fabrication
Alvin Boutte……Electronic Instrumentation and Radiation Detection
Ijette Foley……..Materials Research in Lunar Regolith
Karen Garcia……..Instrumentation and Dosimetry Data Analyses
Julian Norman……Materials Research in Lunar Regolith
Quincy Johnson…….Radiation Modeling

Undergraduate Summer 2009 Intern Students (More Next Page)

Evelyn Woodard
Jacqueline Heard
Chantel Jones
Kenneth Zenon
Jonathan Daniels
Erica Hysmith
Camille Smith

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Center for Radiation Engineering and Science for Space Exploration

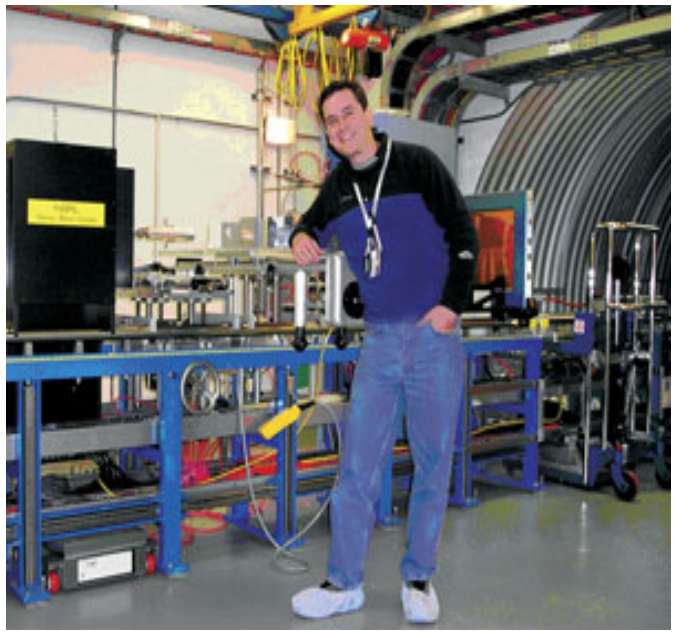
Summer Intern	NASA Mentor	Project Name	Primary Task Description
Evelyn Woodard	Shannon Ryan	Neural Network Programming for Orbital Debris Risk Assessm't (KX- Human Exploration)	Developing and testing a proposed Artificial Neural Network (ANN) capable of predicting penetration limits of the most common Micrometeoroid and Orbital Debris (MMOD) shielding configurations.
Jonathan Daniels	Liou, Jer Chyi (J.-C.)	Characterization of Satellite Breakup Fragments (KX - Orbital Debris (OD)	Process and analyze the size, shape, and material density distributions of one satellite fragment set. Support the OD Optical Measurement Center (OMC) to acquire photometric, spectral, and 3-D scanning data.
Jacqueline Heard	Jer-Chyi Liou (Local mentor: Heather Cowardin)	Characterization of Satellite Breakup Fragments (KX-Orbital Debris Program)	Characterizing 2 micro-satellite breakup fragments. Scanning the STS-127 shuttle tile images, from flight Day 1 and Flight Day 9, for discrepancies (from Pre-Flight images) and recording Regions of Interests (ROI) that may be present on the panels.
Erica Hysmith	David Dyer	Receiving Inspection and Test Facility (RITF) Laboratory Technician	Preparing screws/fasteners using a variety of methods to determine how these techniques can alter material hardness. Through statistically valid research at the Receiving Inspection Testing Facility (RITF), the project consists of determining the degree of error.
Chantel Jones	Fernando Zumbado	Robotics Systems Technology - ER4	Design electronics for Second Lunar Electric Rover (LER). Developed a circuit board for a LED ring to go around a camera that will be on the new LER. Designing a Sequencer Circuit Board, for the PDU that will be in the base of the LER.
Camille Smith	Ramona Gaza	Space Radiation Analysis Group (SRAG)	Data and Analysis- Determining the signal standard deviation and standard error along with the according percentages. **G**amma Uniformity Tests performed.
Kenneth Zenon	Munish Patel Sathya Silva	Intern Data Processing System (DPS) Flight Controller	Space Shuttle and Constellation operations review/develop, mission planning and integration, software testing and support, flight rules review/development and Mission Control Center console operations.

Outreach – www.pvamu.edu/CRESSE/

Prairie View A&M University (PVAMU) researchers are on a NASA quest to find new ways to keep future astronauts and their flight instruments safe from the harmful radiation of deep space while on journeys to the moon and the planets that can last for up to three years.

The Center for Radiation Engineering and Science for Space Exploration (CRESSE) is led by some of the nation's top scientists in fields associated with radiation research, instrumentation, environmental modeling, materials research and electronic components.

The team consists of six key personnel, who have brought more than $13.5 million in research and education funding to PVAMU in the past five years. They will use a scientifically accurate "recipe" of earthly materials to simulate Martian and lunar soil in order to build above ground and underground "habitats." These structures will then be bombarded with radiation particles that mimic surface and subterranean exposures found on Mars and the moon. Potentially deadly radiation is one of the limiting factors in human space exploration.



Dr. Brad Gersey prepares for experiment.

Budget and Payroll Allocations

This is an approximation of employees to be paid for the current fiscal period.

Name	Pin	Project	Effective Date	Form 500 Begin Date	Form 500 End Date	Percent Effort
Bacon Eugene D	P90627	A4040	15-JUL-09	16-JUL-09	31-AUG-09	50%
Boutte Alvin J	P90557	A4040	01-JUN-09	01-JUN-09	31-AUG-09	50%
Craddock Frankie P	P05098	A4040	01-NOV-08	01-NOV-08	31-AUG-09	50%
Dwivedi Ramesh C	P05447	A4040	01-JUN-09	01-AUG-09	31-AUG-09	100%
Foley Ijette D	P90571	A4040	01-JUN-09	01-JUN-09	31-AUG-09	50%
Garcia Karen Y	P90572	A4040	01-JUN-09	01-JUN-09	31-AUG-09	50%
Gersey Bradford B	P04077	A4040	01-SEP-08	01-JAN-09	31-AUG-09	100%
Kirby Kelvin K	P05275	A4040	01-JUN-09	01-JUN-09	31-AUG-09	50%
Norman Jullian L	P90573	A4040	01-JUN-09	01-JUN-09	31-AUG-09	50%
Pendleton Alice M	P05515	A4040	01-JUN-09	01-JUN-09	31-AUG-09	100%
Saganti Premkumar B	P04480	A4040	01-JUN-09	01-JUN-09	31-AUG-09	75%
Wilkins Richard T	P03148	A4040	01-JUN-09	01-JUL-09	31-AUG-09	100%

Project Balances and Budget Summary

Budget Category	Budget	Expenditures	Budget Commitment	Available Balance
BC00 Unallocated Salaries	251,359.25	.00	.00	251,359.25
BC01 Allocated Salaries	236,709.73	192,302.45	44,407.28	.00
BC02 Wages	53,333.46	53,333.46	.00	.00
BC03 Fringe Benefits	39,484.56	33,445.17	6,039.39	.00
BC06 Travel	30,000.00	4,148.30	10,400.00	15,451.70
BC07 Computing - CSC	.00	.00	.00	.00
BC08 Other	59,204.00	10,476.01	11,885.00	36,842.99
BC09 Capital Outlay	129,905.00	35,000.00	92,074.00	2,831.00
BC10 Other (F&A exempt)	.00	10,690.99	.00	-10,690.99
BC20 F&A Cost	200,004.00	81,818.00	118,186.00	.00
Direct Only Total:	799,996.00	339,396.38	164,805.67	295,793.95
Project Total:	1,000,000.00	421,214.38	282,991.67	295,793.95

Year End Budget Balance and Carry-over Justification $295,793

Available balance as of August 31, 2009……$	**295,793**
Projected Payroll for September 2009……$	32,759
Professional Services – Evaluation and Assessment……$	14,000
Projected budget carry-over from Year One to Year Two..$	**249,034**

Justification for Carry-Over follows – project commenced October 2008:

Original Intent of Unused Funds		**Why funds were not used**
Jianren Zhou	$18,578	Promoted to Administrator @ 100% pay
Sukesh Aghara	$25,006	Received NAFP Grant – @ 100% release time
Ph.D. Students 3 each	$72,000	Mid-year is difficult to recruit Ph.D. students
Post Doc1 each	$50,129	Expected carry-over – to establish lab first
Master Students	$51,000	Mid-year start – four unused months
Faculty	$32,321	Mid-year start - Faculty at 100% for fall semester
Carry-over	**$249,034**	

Plan to Utilize Carry-over Funding

1. The funds for Dr. Zhou will move to support graduate students: Masters students
2. The funds for Dr. Aghara will be used to support a Research Scientist in the Transport Modeling Area – the candidate has been interviewed and accepted to work within the Center. The candidate is Dr. Xiaodong Hu
3. Carry-over funds for Co-PI/Research Faculty will remain in the current line items and more faculty release time will be purchased by the project in the upcoming budget year. The increased release time and research efforts will help to compensate for a mid-year start-up.
4. The Deputy Director will remain at 50% time throughout the budget year to ensure research operations and the project management plans are well executed. Securing candidates for the Ph.D. level research is our primary student focus at this time.