NASA-CR-199179

EM41/ Doris W. Hipp

PHOTODEPOSITION OF THIN POLYDIACETYLENE FILMS IN MICROGRAVITY

Final Report to Contract NAS8-38609
Delivery Order No. 125

by

NASA/MSFC and The University of Alabama in Huntsville

Thomas M. Leslie PI

2.0 STATEMENT OF WORK EXTRACTED FROM THE PROPOSAL

2.1 The UAH personnel indicated in the budget will participate with MSFC scientists to help define and develop experiments to deposit polydiacetylene derivatives from solution on orbit. Dr. Leslie and Dr. Zugrav both have previously interacted on a number of collaborations with MSFC scientists, Dr. Fraizer and Dr. Paley, on NLO projects and will continue to due so on this project. Mr. Carswell and Mr. Cacioppo have built, tested, and flown numerous Shuttle experiments with existing NLO hardware. They will be relied upon heavily to make the necessary modifications to the existing flight approved hardware to accommodate the photodeposition experiments. The expertise of all personnel involved (MSFC and UAH) in the project will be called upon to make the appropriate decisions for a successful flight experiment. Dr. Paley (MSFC) has and will continue to synthesize and characterize the monomers. Drs. Paley and Fraizer (MSFC) have and will continue to photo-deposit the monomers under the standard conditions already developed at MSFC. State of the art analysis not available at MSFC such as NMR and AFM/STM is also contemplated.

2.2 UAH will test the modified existing previously flight approved hardware including UV light sources using MSFC provided diacetylene monomers. The modified existing previously flight approved hardware may be flown on the KC-135 if deemed necessary but not by UAH personnel. **Travel is not included in the budget.**

2.3 UAH will collaborate with MSFC scientists to help provide expert interpretation of the experimental results concerning the polymerization processes involved and help make recommendations for future research tasks. State of the art analysis to help provide expert interpretation of the experimental results not available at MSFC such as NMR and AFM/STM is also contemplated.

2.4 UAH will modify and help develop new experimental packages as required for the project within the budgetary constraints.

STATMENT OF WORK COMPLETED ON THIS CONTRACT

All work has been completed to date and the flight hardware delivered and installed by Mr. Carswell. Mr. Cacioppo needed to fly to the site to help install the hardware due to modifications UAH did not have control over. The cost overrun for the entire project was about $20,000. The following memorandum has been supplied by Mr. Carswell.

MEMORANDUM

To: Dr. Tom Leslie

From: Bill Carswell

Date: June 1, 1995

Re: Estimated vs. real cost of experiment

According to UAH Research Proposal 94-634 we proposed to do the PTFG project for a cost of not more than $28,788. The real costs were as follows:

Salaries:	
Bill Carswell (1/3 time for one year, including overhead)	$19,394
Carmen Cacciopo (1/4 time for one month)	$1,114
Materials and other supplies	$72
Supplies - Equipment and Manufacturing	$5,223
Shop charges	
Design & Testing	$2,516
Drafting	$2,108
Materials	$809
Manufacturing	$6,545
Indirect cost recovery	$6,994
Carmen's trip caused by improper loading of 2/3 of PTFG samples	
Salary (2 days)	$407
Travel expenses	$2,000
TOTAL REAL COST	**$47,182**

Thus, we were reimbursed for about 2/3 of the actual cost.