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Two-Dimensional Velocimetry Instrumentation (U)

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This is a brief report on the acquisition and implementation of instrumentation which will be used to make two-dimensional velocimetry measurements in a study of premixed turbulent flames.

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STATUS OF RESEARCH

Funds provided by DoD URIP and matching funds provided by Penn State and the NASA Space Propulsion Center have been used to purchase equipment for making two-dimensional velocimetry measurements in turbulent flows. The actual equipment which has been purchased is summarized on the following page. This equipment has been acquired, set-up and made operational. Mr. David Nye, an AFRAPT Trainee, who is working on an AFOSR funded study of flame-turbulence interactions, has developed image interrogation software which is used to analyze the two-dimensional velocimetry data. To date, successful analysis of simulated data and preliminary particle imaging velocimetry data have been accomplished.

Summary of Equipment Purchased

Quantity	Item	Approx. Cost
2	Nd:YAG Lasers (Spectra-Physics #DCR-11-2D)	$57,300
1	Optical Table (Newport Corp. #MST-410, #NN4-28)	4,300
1	Array Processor and Frame Grabber (Data Translation #DT-7020, #DT-7851)	10,200
1	386/25 Personal Computer System (Compaq #110, VGA Board, Color Monitor, Intel Co-Processor, Software)	10,950
1	Bernoulli Box (IOMEGA #B244X)	2,400
1	Stepping Motor System (Cyber #23)	1,000
1	Argon Ion Laser (Ion-Laser Tech. #5500)	9,500
1	CCD Camera (Cohu #4815/2000)	1,500
	Miscellaneous Optics and Mounts	2,000
	TOTAL	$98,650

Summary of Funding

DoD URIP		$55,170
University		36,780
NASA-Center		6,700
	TOTAL	$98,650