SUMMARY PROPOSAL BUDGI	CT I)	E <u>AR</u>				v
ORGANIZATION			FO POSAL			
	hnolo		POSAL	. NO.	Proposed	DN (month
Georgia Tech Research Corporation - GA Institute of Tec PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR	1110105		/ARD N	0	Proposed	d Grante
Principal investigator / Project Director		AW		NO.		
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates		NSF Funde Person-mos	d		Funds	Funds
(List each separately with title, A.7. show number in brackets)	CAL	ACAD		Re	equested By proposer	granted by N (if different
1. Predrag Cvitanovic - PI/Director		0.00		_	34,000	-
2. Leonid Bunimovich - CoPI/Professor		0.00			0	Ψ
3. Stephen P DeWeerth - CoPI/Associate professor		0.00			0	
4. William Ditto - Professor		0.00			<u> </u>	
5. Ronald Fox - Professor, Chair		0.00			0	
6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00			0	
7. (15) TOTAL SENIOR PERSONNEL (1 - 6)	0.0	0.00	2.00)	34,000	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)						
1. (5) POST DOCTORAL ASSOCIATES	60.00	0.00	0.00)	201,800	
2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00)	63,700	
3. ($f12$) GRADUATE STUDENTS					221,100	
4. (5) UNDERGRADUATE STUDENTS					53,000	
5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					38,300	
6. (4) OTHER					297,300	
TOTAL SALARIES AND WAGES (A + B)					909,200	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					153,059	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1	,062,259	
TOTAL EQUIPMENT		8),000		80,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE	SSIONS)				21,800	
	SSIONS)					
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE	SSIONS)				21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN	SSIONS)				21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 5. 60,000	SSIONS)				21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000	SSIONS)				21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE	SSIONS)			-	21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000	SSIONS)				21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE					21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER					21,800 31,200	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60)					21,800 31,200 90,000 25,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60)					21,800 31,200 90,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL SUPPLIES					21,800 31,200 90,000 25,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (70) TOTAL NUMBER OF PARTICIPANTS (70) TOTAL NUMBER OF PARTICIPANTS (70)					21,800 31,200 90,000 25,000 5,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 60,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PARTICIPANTS (70) G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES					21,800 31,200 90,000 25,000 5,000 5,000 2,000 0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 4. STIPENDS 1. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER					21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 9 1. STIPENDS 1. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS					21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PARTICIPANTS (60) TOTAL PARTICIPANTS G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G)					21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS <u>10,000</u> 2. TRAVEL <u>10,000</u> 3. SUBSISTENCE <u>10,000</u> 4. OTHER <u>10,000</u> TOTAL NUMBER OF PARTICIPANTS (<u>60</u>) TOTAL PARTICIPANTS G. OTHER DIRECT COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)	ΓΙCIPAN	COSTS			21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comme	ΓΙCIPAN	COSTS			21,800 31,200 90,000 25,000 5,000 5,000 0 49,680 86,680 3,371,939	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. ODMESTIC COSTS 1. SUBSISTENCE 1. ODMOD 3. SUBSISTENCE 1. ODMOD TOTAL NUMBER OF PARTICIPANTS (60) 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate:	ΓΙCIPAN	COSTS			21,800 31,200 90,000 25,000 5,000 5,000 0 49,680 86,680 3,371,939 576,423	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 3. SUPPORT SUPPORT COSTS 1. STIPENDS 1. MATERIALS 1. OTTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comme IOTAL INDIRECT AND INDIRECT COSTS (H + I) <td>TICIPAN^T</td> <td>costs</td> <td></td> <td></td> <td>21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 3,371,939 576,423 ,948,362</td> <td></td>	TICIPAN ^T	costs			21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 3,371,939 576,423 ,948,362	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 3. SUPPORT SUPPORT COSTS 1. STIPENDS 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comme TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) X. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CU	TICIPAN ^T	costs			21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 3,371,939 576,423 ,948,362 0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER 100,000 TOTAL NUMBER OF PARTICIPANTS 6. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comme TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS AMOUNT OF THIS REQUEST (J) OR (J MINUS K)	TICIPAN nts Pa	- COSTS 	.)		21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 3,371,939 576,423 ,948,362	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 4. OTHER 10,000 5. SUBSISTENCE 10,000 4. OTHER 10,000 5. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comme TOTAL INDRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS J. MOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 295,000	TICIPAN nts Pa	- COSTS 	.) T \$		21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 371,939 576,423 ,948,362 0 ,948,362	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSE 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 1. STIPENDS 2. TRAVEL 1. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A) 2. INDIRECT COSTS (F&A) 3. TOTAL DIRECT AND INDIRECT COSTS (H + I) X. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS <t< td=""><td>TICIPAN nts Pa</td><td>- COSTS - COSTS </td><td>.) FOR </td><td>1 5 1 8 1 8</td><td>21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 3,371,939 576,423 ,948,362 0</td><td>\$</td></t<>	TICIPAN nts Pa	- COSTS - COSTS 	.) FOR	1 5 1 8 1 8	21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 3,371,939 576,423 ,948,362 0	\$

Other Senior Personnel					
Name - Title	Cal	Acad	Sumr	Funds 1	Requested
					_
Geronimo, Jeff - Professor	0.00	0.00	0.0	0	0
Ghrist, Robert - Assistant professor	0.0	0 0	.00	0.00	0
Grigoriev, Roman - Assistant profes	sor	0.00	0.00	0.00	0
Hernandez, Rigoberto - Assistant pr	ofessor	0.00	0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00		0
Schatz, Michael - CoPI/Assistant pro	ofessor	0.00	0.00	0.00	0
Shilnikov, Andrey - Assistant profes	sor (0.00	0.00	0.00	0
Uzer, Turgay - Professor	0.00	0.00	0.00)	0
Weeks, Eric R - Assistant professor	0.	00 ().00	0.00	0
Wiesenfeld, Kurt - CoPI/Professor	0.	00 (0.00	0.00	0

SUMMARY PROPOSAL BUDGI	T YF				~~~~	,
ORGANIZATION			POSAL			DN (month
Georgia Tech Research Corporation - GA Institute of Tec	nnolog	1			osec	Granted
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR		AW	ARD N	0.		
Predrag Cvitanovic		ISE Eundo	Ч	Funda		E
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		SF Funde		Funds Requested	Ву	Funds granted by N (if different
		ACAD		proposer		
1. Predrag Cvitanovic - PI/Professor		0.00		\$ 34,0		\$
2. Leonid Bunimovich - CoPI/Professor		0.00			0	
3. Stephen P DeWeerth - CoPI/Associate professor		0.00			0	
4. William Ditto - Professor		0.00			0	
5. Ronald Fox - Professor/Chair		0.00			0	
6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00		210	0	
7. (15) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00	34,0	000	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)	60.00	0.00	0.00		200	
1. (5) POST DOCTORAL ASSOCIATES		0.00		201,8		
2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00	63,7		
3. (12) GRADUATE STUDENTS				221,1		
4. (5) UNDERGRADUATE STUDENTS				53,0		
5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				38,3		
6. (4) OTHER				297,3		
TOTAL SALARIES AND WAGES (A + B)				909,2		
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS) TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				<u> </u>		
TOTAL EQUIPMENT					0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES	SSIONS)			21,8	800	
	SSIONS)			<u>21,8</u> 31,2	800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES	SSIONS)				800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN	SSIONS)				800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 60 000	SSIONS)				800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. STIPENDS 1. 0000	SSIONS)				800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 10,000	SSIONS)				800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE	SSIONS)				800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER				31,2	800 200	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60)		COSTS			800 200	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS		COSTS		<u> </u>	800 200 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES		COSTS		31,2 90,(25,(800 200 200 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (20) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION		COSTS		31,2 90,(25,(5,(800 200 200 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES		COSTS		31,2 90,(25,(5,(5,(800 200 200 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES		COSTS		31,2 90,(25,(5,(5,(800 200 200 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES		COSTS		90,(25,(5,(2,(800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER		COSTS		31,2 90,0 25,0 5,0 2,0 49,0	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS		COSTS		31,2 90,0 25,0 5,0 2,0 49,0 86,0	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. MAVEL 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G)		COSTS		31,2 90,0 25,0 5,0 2,0 49,0	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 1. STIPENDS 2. TRAVEL 1. STIPENDS 2. TRAVEL 1. STIPENDS 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commeter <td></td> <td></td> <td></td> <td>31,2 90,(25,(5,(2,(49,(86,(1,291,)</td> <td>800 200 200 000 000 000 000 000 000 000</td> <td></td>				31,2 90,(25,(5,(2,(49,(86,(1,291,)	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. STIPENDS 1. STIPENDS 1. STIPENDS 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commet TOTAL INDIRECT COSTS (F&A)				31,2 90,(25,(5,(2,(49,(86,(1,291,5 576,4	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. STIPENDS 1. STIPENDS 1. STIPENDS 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commet TOTAL INDIRECT AND INDIRECT COSTS (H + I)	ICIPANT	ge)		31,2 90,(25,(5,(2,(49,(86,(1,291,)	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 4. OTHER 1. STIPENDS 4. OTHER 1. SUBSISTENCE 4. OTHER 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A) (SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commer TOTAL INDIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS	ICIPANT	ge))	31,2 90,(25,(5,(2,(49,(86,(1,291,5 576,4 1,868,3	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 4. OTHER 10,000 3. SUBSISTENCE 10,000 4. OTHER 10.000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS	ICIPANT	;e) G II.D.7.j		31,2 90,(25,(5,(2,(49,(86,(1,291,5 576,4	800 200 200 000 000 000 000 000 000 000	\$
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 1. STIPENDS 3. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 5. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 283,000	ICIPANT	;e) G II.D.7.j	Т\$	31,2 90,(25,(5,(2,(49,(86,(1,291,5 576,4 1,868,3 \$ 1,868,3	800 200 200 000 000 000 000 000 000 000	\$
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 4. OTHER SUPPORT COSTS 1. STIPENDS \$ 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commet TOTAL DIRECT COSTS (F&A) J. TOTAL DIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 283,000 AGREED LEVE PI / PD TYPED NAME & SIGNATURE* DATE	ICIPANT	ge) G II.D.7.j	T \$ FOR I	31,2 90,1 25,1 5,1 5,1 2,1 49,6 86,6 1,291,5 576,4 1,868,3 \$ 1,868,3	800 200 200 000 000 000 000 000 000 000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 3. SUPPIDENDS 3. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDI		ge) G II.D.7.j	T \$ FOR I	31,2 90,(25,(5,(2,(49,(86,(1,291,5 576,4 1,868,3 \$ 1,868,3	800 200 200 000 000 000 000 000 000 000	

Other Senior Personnel					
Name - Title	Cal	Acad	Sumr	Funds 1	Requested
					-
Geronimo, Jeff - Professor	0.00	0.00	0.0)	0
Ghrist, Robert - Assistant professor	0.0)0 0	.00	0.00	0
Grigoriev, Roman - Assistant profes	sor	0.00	0.00	0.00	0
Hernandez, Rigoberto - Assistant pr	ofessor	0.00	0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00		0
Schatz, Michael - CoPI/Assist.profes	sor	0.00	0.00	0.00	0
Shilnikov, Andrey - Assistant profes	sor ().00	0.00	0.00	0
Uzer, Turgay - Professor	0.00	0.00	0.00)	0
Weeks, Eric R - Assistant professor	0.	00 0).00	0.00	0
Wiesenfeld, Kurt - CoPI/Professor	0.	00 (0.00	0.00	0

PROPOSAL BUDGE ORGANIZATION Georgia Tech Research Corporation - GA Institute of Tecl PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Predrag Cvitanovic A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) 1. Predrag Cvitanovic - PI/Professor 2. Leonid Bunimovich - CoPI/Professor 3. Stephen P DeWeerth - CoPI/Associate professor 4. William Ditto - Professor 5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 6. (4) OTHER	hnolog CAL 0.00 0.00 0.00 0.00 0.00 0.00	AW ASF Funder erson-mos ACAD 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	POSAL ARD N SUMR 2.00 0.00 0.00 0.00 0.00 0.00 0.00	Proposed O. Funds Requested By proposer \$ 34,000 0 0 0 0 0 0 0	DN (months)
Georgia Tech Research Corporation - GA Institute of Tecl PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Predrag Cvitanovic A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) 1. Predrag Cvitanovic - PI/Professor 2. Leonid Bunimovich - CoPI/Professor 3. Stephen P DeWeerth - CoPI/Associate professor 4. William Ditto - Professor 5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)	CAL 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	AW ASF Funder erson-mos ACAD 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	ARD No 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Proposed O. Funds Requested By proposer \$ 34,000 0 0 0 0 0 0 0	Funds Granted by NS (if different)
 PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR Predrag Cvitanovic A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) 1. Predrag Cvitanovic - PI/Professor 2. Leonid Bunimovich - CoPI/Professor 3. Stephen P DeWeerth - CoPI/Associate professor 4. William Ditto - Professor 5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 	CAL 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	AW SF Funde erson-mos ACAD 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	SUMR 2.00 0.00 0.00 0.00 0.00 0.00	O. Funds Requested By proposer \$ 34,000 0 0 0 0 0 0 0 0 0 0 0 0	Funds granted by NS (if different)
Predrag Cvitanovic A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) 1. Predrag Cvitanovic - PI/Professor 2. Leonid Bunimovich - CoPI/Professor 3. Stephen P DeWeerth - CoPI/Associate professor 4. William Ditto - Professor 5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)	CAL 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	ISF Fundeerson-mos ACAD 0.000 0.000 0.000 0.000 0.000 0.000 0.000	SUMR 2.00 0.00 0.00 0.00 0.00 0.00	Funds Requested By proposer \$ 34,000 0 0 0 0 0 0 0	granted by NS (if different)
 A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets) 1. Predrag Cvitanovic - PI/Professor 2. Leonid Bunimovich - CoPI/Professor 3. Stephen P DeWeerth - CoPI/Associate professor 4. William Ditto - Professor 5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 	CAL 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	ACAD 0.00 0.00 0.00 0.00 0.00 0.00 0.00	SUMR 2.00 0.00 0.00 0.00 0.00 0.00	Requested By proposer \$ 34,000 0 0 0 0 0 0	granted by NS (if different)
 (List each separately with title, A.7. show number in brackets) 1. Predrag Cvitanovic - PI/Professor 2. Leonid Bunimovich - CoPI/Professor 3. Stephen P DeWeerth - CoPI/Associate professor 4. William Ditto - Professor 5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 	CAL 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	ACAD 0.00 0.00 0.00 0.00 0.00 0.00 0.00	SUMR 2.00 0.00 0.00 0.00 0.00 0.00	Requested By proposer \$ 34,000 0 0 0 0 0 0	granted by NS (if different)
 Predrag Cvitanovic - PI/Professor Leonid Bunimovich - CoPI/Professor Stephen P DeWeerth - CoPI/Associate professor Stephen P DeWeerth - CoPI/Associate professor William Ditto - Professor Ronald Fox - Professor/Chair (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) (15) TOTAL SENIOR PERSONNEL (1 - 6) OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) (5) POST DOCTORAL ASSOCIATES (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) (12) GRADUATE STUDENTS (5) UNDERGRADUATE STUDENTS (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 	0.00 0.00 0.00 0.00 0.00 0.00 0.00 60.00	0.00 0.00 0.00 0.00 0.00 0.00	2.00 0.00 0.00 0.00 0.00 0.00	\$ 34,000 0 0 0 0	
 Leonid Bunimovich - CoPI/Professor Stephen P DeWeerth - CoPI/Associate professor William Ditto - Professor William Ditto - Professor Ronald Fox - Professor/Chair (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) (15) TOTAL SENIOR PERSONNEL (1 - 6) OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) (5) POST DOCTORAL ASSOCIATES (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) (12) GRADUATE STUDENTS (5) UNDERGRADUATE STUDENTS (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 	0.00 0.00 0.00 0.00 0.00 0.00 60.00	0.00 0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0 0 0 0	\$
 Stephen P DeWeerth - CoPI/Associate professor William Ditto - Professor Ronald Fox - Professor/Chair (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) (15) TOTAL SENIOR PERSONNEL (1 - 6) OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) (5) POST DOCTORAL ASSOCIATES (12) GRADUATE STUDENTS (5) UNDERGRADUATE STUDENTS (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 	0.00 0.00 0.00 0.00 0.00 60.00	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00	0 0 0	
 4. William Ditto - Professor 5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY) 	0.00 0.00 0.00 0.00 60.00	0.00 0.00 0.00 0.00	0.00 0.00 0.00	0	
5. Ronald Fox - Professor/Chair 6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)	0.00 0.00 0.00 60.00	0.00 0.00 0.00	0.00 0.00	0	
6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE) 7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)	0.00 0.00 60.00	0.00 0.00	0.00		
7. (15) TOTAL SENIOR PERSONNEL (1 - 6) B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)	0.00	0.00		0	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS) 1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)	60.00			34,000	
1. (5) POST DOCTORAL ASSOCIATES 2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)		0.00	2.00	34,000	
2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.) 3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)			0.00	201,800	
3. (12) GRADUATE STUDENTS 4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)	12.00			63,700	
4. (5) UNDERGRADUATE STUDENTS 5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)		0.00	0.00	221,100	
5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				53,000	
				38,300	
				297,300	
TOTAL SALARIES AND WAGES (A + B)				909,200	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				153,059	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1.062.259	
2. FOREIGN				31,200	
F. PARTICIPANT SUPPORT COSTS 1. STIPENDS \$ 60,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000					
4. OTHER 10,000					
TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART	ICIPANT	COSTS		90,000	
G. OTHER DIRECT COSTS					
1. MATERIALS AND SUPPLIES				25,000	
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				5,000	
3. CONSULTANT SERVICES				5,000	
4. COMPUTER SERVICES				2,000	
5. SUBAWARDS				0	
6. OTHER				49,680	1
				86,680	1
				1,341,939	
H. TOTAL DIRECT COSTS (A THROUGH G)					
H. TOTAL DIRECT COSTS (A THROUGH G)	nts Pag	ge)			
 H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment 	nts Pag	ge)		576,423	
H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commen TOTAL INDIRECT COSTS (F&A)	nts Pag	ge)		576,423 1,918,362	
 H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commer TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) 			.)		
H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commen TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS			.)	1,918,362	\$
H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commen TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)	SEE GPC	G II.D.7.j		1,918,362 0	\$
H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commen TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 290,000 AGREED LEV	SEE GPC	G II.D.7.j	Т\$	1,918,362 0	\$
H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commen TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 290,000 AGREED LEV		G II.D.7.j	T \$ FOR N	1,918,362 0 \$ 1,918,362	
H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commen TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 290,000 AGREED LEV PI / PD TYPED NAME & SIGNATURE* DATE		G II.D.7.j	T \$ FOR N	1,918,362 0 \$ 1,918,362 NSF USE ONLY	

Other Senior Personnel Name - Title	Cal	Acad	Sumr	Funds]	Requested
Geronimo, Jeff - Professor	0.00	0.00	0.00)	0
Ghrist, Robert - Assistant professor	0.0	0 0	.00	0.00	0
Grigoriev, Roman - Assistant profess	sor	0.00	0.00	0.00	0
Hernandez, Rigoberto - Assistant pr	ofessor	0.00	0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00		0
Schatz, Michael - CoPI/Assistant pro	ofessor	0.00	0.00	0.00	0
Shilnikov, Andrey - Assistant profes	sor ().00	0.00	0.00	0
Uzer, Turgay - Professor	0.00	0.00	0.00		0
Weeks, Eric R - Assistant professor	0.0	00 0).00	0.00	0
Wiesenfeld, Kurt - CoPI/Professor	0.	00 (0.00	0.00	0

SUMMARY PROPOSAL BUDGE	T YE		FOF	R NSF	USE ONL	Y
ORGANIZATION	- 1	PRO	POSAL		1	DN (month
Georgia Tech Research Corporation - GA Institute of Tecl	hnolog	-	00/12		Proposed	
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR	morog	1	ARD N	10.		
Predrag Cvitanovic			/			
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates	N	SF Funde erson-mos	d		Funds	Funds
(List each separately with title, A.7. show number in brackets)		ACAD		- Req pr	uested By roposer	granted by N (if differen
1. Predrag Cvitanovic - PI/Professor		0.00		-	34,000	\$
2. William Ditto - Professor		0.00			0	
3. Ronald Fox - Professor/Chair	0.00	0.00	0.00		0	
4. Jeff Geronimo - Professor	0.00	0.00	0.00		0	
5. Robert Ghrist - Assistant professor	0.00	0.00	0.00		0	
6. (6) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00		0	
7. (11) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00		34,000	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)						
1. (5) POST DOCTORAL ASSOCIATES		0.00			201,800	
2. (1) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00		63,700	
3. (12) GRADUATE STUDENTS				2	221,100	
4. (5) UNDERGRADUATE STUDENTS					53,000	
5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)					38,300	
6. (4) OTHER					297,300	
TOTAL SALARIES AND WAGES (A + B)					009,200	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					153,059	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1,0)62,259	
TOTAL EQUIPMENT E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES	SIONS)				0 21,800	
	SIONS)				0 21,800 31,200	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES	SSIONS)				21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN	SSIONS)				21,800	
TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 60.000	SSIONS)				21,800	
TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 10000	SSIONS)			-	21,800	
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 4. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 10,000	SSIONS)			-	21,800	
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE	SSIONS)			-	21,800	
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER				-	<u>21,800</u> 31,200	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60)		COSTS			21,800	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60)		COSTS			21,800 31,200 90,000	
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (61) TOTAL SUPPLIES		COSTS			21,800 31,200 90,000 25,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (20)		COSTS			21,800 31,200 90,000 25,000 5,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 4. STIPENDS 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (700) 3. CONSULTANT SERVICES		COSTS			21,800 31,200 90,000 25,000 5,000 5,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 4. STIPENDS 5. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES		COSTS			21,800 31,200 90,000 25,000 5,000 5,000 2,000	
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) 10 TOTAL NUMBER OF PARTICIPANTS (60) 10 TOTAL NUMBER OF PARTICIPANTS (60) 10 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS		COSTS			21,800 31,200 90,000 25,000 5,000 5,000 2,000 0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER		COSTS			21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS		COSTS			21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60)		COSTS		1,2	21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 60,000 2. TRAVEL 1. STIPENDS 1. TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 1. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)	ICIPANT			1,2	21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 3. SUPPORT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment	ICIPANT				21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680 86,680 291,939	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 3. SUPPORT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment TOTAL INDIRECT COSTS (F&A)	ICIPANT				21,800 31,200 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 291,939 576,423	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 1. SUBSISTENCE 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)	ICIPANT	je)	.)		21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680 86,680 291,939	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 3. SUPPORT SUPPORT COSTS 1. STIPENDS 4. OTHER 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commen TOTAL DIRECT AND INDIRECT COSTS (H + I) X. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS	ICIPANT	je)	.)	5 1,8	21,800 31,200 31,200 90,000 25,000 5,000 2,000 2,000 49,680 86,680 291,939 576,423 868,362	\$
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 1. STIPENDS 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment TOTAL INDIRECT COSTS (F&A) . TOTAL DIRECT AND INDIRECT COSTS (H + I) C. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS . AMOUNT OF THIS REQUEST (J) OR (J MINUS K)	ICIPANT	;e) G II.D.7.j		5 1,8	21,800 31,200 31,200 90,000 25,000 5,000 5,000 5,000 2,000 49,680 86,680 291,939 576,423 368,362 0	\$
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 4. OTHER 10,000 5. SUBSISTENCE 10,000 6. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL DIRECT COSTS 1. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commentorial INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS J. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$	ICIPANT	;e) G II.D.7.j	Т\$	1,8 \$ 1,8	21,800 31,200 31,200 90,000 25,000 5,000 5,000 5,000 2,000 49,680 86,680 291,939 576,423 368,362 0	\$
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 10,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 4. OTHER 10,000 5. SUBSISTENCE 10,000 4. OTHER 10,000 5. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment IOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$	ICIPANT	;e) 3 II.D.7.j	T \$ FOR N	5 1,8 \$ 1,8 NSF US	21,800 31,200 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680 291,939 576,423 368,362 0 368,362	

Other Senior Personnel Name - Title	Cal	Acad	Sumr	Funds F	lequ	ested
Grigoriev, Roman - Assistant profes Hernandez, Rigoberto - Assistant pr		0.00	0.00 0.00	0.00		0
Neitzel, G. Paul - Professor	0.00	0.00	0.00		0	0
Shilnikov, Andrey - Assistant profes Uzer, Turgay - Professor	sor (0.00	0.00 0.00	0.00 0.00	0.00	0	U
Weeks, Eric R - Assistant professor	0.	00 ().00	0.00		0

ORGANIZATION				R NSF USE ONL	v
	- 1		POSAL		DN (month
Georgia Tech Research Corporation - GA Institute of Tech	molog		OUAL	Propose	`
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR	morog	1	ARD N		
Predrag Cvitanovic				0.	
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates	l l	SF Funde	d	Funds	Funds
(List each separately with title, A.7. show number in brackets)		ACAD		Requested By proposer	granted by N (if different
1. Predrag Cvitanovic - PI/Professor		0.00		\$ 34,000	+
2. Leonid Bunimovich - CoPI/Professor		0.00			
3. Stephen P DeWeerth - CoPI/Associate professor		0.00			
4. William Ditto - Professor		0.00			
5. Ronald Fox - Professor/Chair		0.00			
6. (10) others (list individually on budget justification page)	0.00	0.00	0.00	0	
7. (15) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00	34,000	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)					
1. (5) POST DOCTORAL ASSOCIATES	60.00	0.00	0.00	201,800	
2. (1) other professionals (technician, programmer, etc.)	12.00	0.00	0.00		
3. (12) GRADUATE STUDENTS				221,100	
4. (5) UNDERGRADUATE STUDENTS				53,000	
5. (1) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				38,300	
6. (4) OTHER				297,300	
TOTAL SALARIES AND WAGES (A + B)				909,200	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)				153,059	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1,062,259	
	SIONS)			0 21,800	
2. FOREIGN	SIONS)			~	
	SIONS)			21,800	
2. FOREIGN	SIONS)			21,800	
2. FOREIGN E. PARTICIPANT SUPPORT COSTS 60 000	SIONS)			21,800	
2. FOREIGN 2. FOREIGN 5. PARTICIPANT SUPPORT COSTS 1. STIPENDS \$ 10 000	SIONS)			21,800	
2. FOREIGN 2. FOREIGN 4. STIPENDS \$ 2. TRAVEL 10,000 10,000	SIONS)			21,800	
2. FOREIGN 2. FOREIGN 4. STIPENDS 2. TRAVEL 3. SUBSISTENCE	SIONS)			21,800	
2. FOREIGN 2. FOREIGN 2. FOREIGN 3. SUBSISTENCE		COSTS		21,800	
2. FOREIGN 2. FOREIGN 2. FOREIGN 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER		COSTS		21,800 31,200 90,000	
2. FOREIGN 2. FOREIGN 2. FOREIGN 4. OTHER 10000 TOTAL NUMBER OF PARTICIPANTS (60)		COSTS		21,800 31,200 90,000 25,000	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 1. STIPENDS 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) G. OTHER DIRECT COSTS		COSTS		21,800 31,200 90,000 25,000 5,000	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 1. STIPENDS 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60)		COSTS		21,800 31,200 90,000 25,000 5,000 5,000	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 1. STIPENDS 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PARTI G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION		COSTS		21,800 31,200 90,000 25,000 5,000	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 1. STIPENDS \$ 60,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PARTI G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS		COSTS		21,800 31,200 90,000 25,000 5,000 5,000 2,000 0	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 1. STIPENDS \$ 60,000 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PARTI G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER		COSTS		21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL NUMBER OF PARTICIPANTS (60) TOTAL PARTICIPANTS (700) G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS		COSTS		21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 1. STIPENDS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60)		COSTS		21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. SUPPORT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)	ICIPANT			21,800 31,200 90,000 25,000 5,000 5,000 2,000 0 49,680 86,680	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 10,000 3. SUBSISTENCE 10,000 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commer	ICIPANT			21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680 86,680 1,291,939	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commer OTAL INDIRECT COSTS (F&A)	ICIPANT			21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680 86,680 1,291,939 576,423	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commer TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I)	ICIPANT	ge)		21,800 31,200 90,000 25,000 5,000 2,000 0 49,680 86,680 1,291,939 576,423 1,868,362	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Commer TOTAL INDIRECT COSTS (F&A) . TOTAL DIRECT AND INDIRECT COSTS (H + I) X. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS S	ICIPANT	ge)		21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680 86,680 1,291,939 576,423 1,868,362 0	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS 4. TOTAL DIRECT COSTS (A THROUGH G) INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment OTAL INDIRECT COSTS (F&A) . TOTAL DIRECT AND INDIRECT COSTS (H + I) C. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS S . AMOUNT OF THIS REQUEST (J) OR (J MINUS K)	ICIPANT	ge) G II.D.7.j	.)	21,800 31,200 90,000 25,000 5,000 2,000 0 49,680 86,680 1,291,939 576,423 1,868,362	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS (A THROUGH G) INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment TOTAL INDIRECT COSTS (F&A) 1. TOTAL DIRECT COSTS (F&A) 2. TOTAL DIRECT AND INDIRECT COSTS (H + I) 3. CRESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS S 4. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) 4. COST SHARING PROPOSED LEVEL \$ 280,000	ICIPANT	ge) G II.D.7.j	.) T \$	21,800 31,200 90,000 25,000 5,000 2,000 0 49,680 86,680 1,291,939 576,423 1,868,362 0 \$ 1,868,362	
2. FOREIGN 2. FOREIGN 2. FOREIGN 2. FOREIGN 2. TRAVEL 1. STIPENDS 2. TRAVEL 10,000 3. SUBSISTENCE 4. OTHER 10,000 TOTAL NUMBER OF PARTICIPANTS (60) TOTAL DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS (A THROUGH G) . INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE) 25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comment TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) C. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS S . AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$	ICIPANT	ge) G II.D.7.j	.) T \$ FOR 1	21,800 31,200 90,000 25,000 5,000 5,000 2,000 49,680 86,680 1,291,939 576,423 1,868,362 0	\$

Cal	Acad	Sumr	Funds I	Requested
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sor	0.00	0.00	0.00	0
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SUMMARY PROPOSAL BUDGE	ст ^{Сі}	<u>imulat</u>				v
			POSAL			
ORGANIZATION			POSAL	. NO.		DN (months
Georgia Tech Research Corporation - GA Institute of Tech PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR	nnoio	7		0	Proposed	Granted
		AW	/ARD N	Ю.		
Predrag Cvitanovic		NSE Eunde	d		Funds	Funds
A. SENIOR PERSONNEL: PI/PD, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)		NSF Funde Person-mo		Re	equested By	granted by NS (if different)
		ACAD				
<u>1. Predrag Cvitanovic - PI/Director</u>		0.00			170,000	\$
2. Leonid Bunimovich - CoPI/Professor		0.00			0	
3. Stephen P DeWeerth - CoPI/Associate professor		0.00			0	
4. William Ditto - Professor		0.00			0	
5. Ronald Fox - Professor/Chair		0.00			0	
6. (10) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)		0.00			0	
7. (15) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	10.00)	170,000	
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)	200.04	0.00	0.00		000 000	
		0.00			<u>,009,000</u>	
2. (5) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	60.00	0.00	0.00		318,500	
3. (60) GRADUATE STUDENTS				1	,105,500	
4. (25) UNDERGRADUATE STUDENTS				-	265,000	
5. (5) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				-	191,500	
6. (20) OTHER					,486,500	
TOTAL SALARIES AND WAGES (A + B)				4	,546,000	
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)					765,295	
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				5	,311,295	
			0,000		130,000	
	SSIONS)				109,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES	SSIONS)					
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN E. PARTICIPANT SUPPORT COSTS	SSIONS)				109,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS \$300,000	SSIONS)				109,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 50,000	SSIONS)				109,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 50,000	SSIONS)				109,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER					109,000 156,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (300)		COSTS			109,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS		COSTS			109,000 156,000 450,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES		COSTS			109,000 156,000 450,000 125,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION		COSTS			109,000 156,000 450,000 125,000 25,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL NUMBER OF PARTICIPANTS (300) TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES		COSTS			109,000 156,000 450,000 125,000 25,000 25,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES		COSTS			109,000 156,000 450,000 125,000 25,000 25,000 10,000	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS		COSTS			109,000 156,000 450,000 125,000 25,000 25,000 10,000 0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER		COSTS			109,000 156,000 450,000 125,000 25,000 25,000 10,000 0 248,400	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS		COSTS			109,000 156,000 450,000 125,000 25,000 25,000 0 248,400 433,400	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G)		COSTS			109,000 156,000 450,000 125,000 25,000 25,000 10,000 0 248,400	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G)		COSTS			109,000 156,000 450,000 125,000 25,000 25,000 0 248,400 433,400	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)		COSTS		6	109,000 156,000 450,000 125,000 25,000 25,000 0 248,400 433,400 ,589,695	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A)		COSTS		6	109,000 156,000 450,000 125,000 25,000 25,000 10,000 0 248,400 433,400 ,589,695 ,882,115	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL SERVICES 1. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A) J. TOTAL DIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				6	109,000 156,000 450,000 125,000 25,000 25,000 25,000 10,000 0 248,400 433,400 ,589,695 ,882,115 ,471,810	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 3. SUBSISTENCE 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) I. INDIRECT COSTS (F&A) J. TOTAL DIRECT COSTS (F&A) J. TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS				6	109,000 156,000 450,000 125,000 25,000 25,000 10,000 0 248,400 433,400 ,589,695 ,882,115 ,471,810 0	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. STIPENDS 3. STIPENDS 3. SUBSISTENCE 50,000 3. SUBSISTENCE 50,000 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A) J. TOTAL DIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)	ICIPANT	G II.D.7.j	.)	6	109,000 156,000 450,000 125,000 25,000 25,000 25,000 10,000 0 248,400 433,400 ,589,695 ,882,115 ,471,810	\$
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. STIPENDS 3. STIPENDS 3. SUBSISTENCE 50,000 3. SUBSISTENCE 50,000 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (F&A)(SPECIFY RATE AND BASE) TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 1,428,000 AGREED LEVEL	ICIPANT	G II.D.7.j	.) IT \$	6 2 9 \$ 9	109,000 156,000 156,000 125,000 25,000 25,000 25,000 10,000 0 248,400 433,400 ,589,695 ,882,115 ,471,810 0 ,471,810	\$
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN F. PARTICIPANT SUPPORT COSTS 1. STIPENDS 2. TRAVEL 50,000 3. SUBSISTENCE 50,000 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (A THROUGH G) 1. INDIRECT COSTS (F&A) J. TOTAL DIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 1,428,000 AGREED LEV PI / PD TYPED NAME & SIGNATURE* DATE	ICIPANT	G II.D.7.	.) IT \$ FOR I	6 22 9 \$ 9	109,000 156,000 156,000 125,000 25,000 25,000 0 248,400 433,400 ,589,695 ,882,115 ,471,810 0 ,471,810 JSE ONLY	
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSES 2. FOREIGN 2. FOREIGN 5. STIPENDS 3. STIPENDS 3. SUBSISTENCE 50,000 3. SUBSISTENCE 50,000 4. OTHER 50,000 TOTAL NUMBER OF PARTICIPANTS (300) TOTAL PART G. OTHER DIRECT COSTS 1. MATERIALS AND SUPPLIES 2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION 3. CONSULTANT SERVICES 4. COMPUTER SERVICES 5. SUBAWARDS 6. OTHER TOTAL OTHER DIRECT COSTS H. TOTAL DIRECT COSTS (F&A)(SPECIFY RATE AND BASE) TOTAL INDIRECT COSTS (F&A) J. TOTAL DIRECT AND INDIRECT COSTS (H + I) K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K) M. COST SHARING PROPOSED LEVEL \$ 1,428,000 AGREED LEVEL		G II.D.7.	.) IT \$ FOR I CT COS	6 29 \$ 9 ST R/	109,000 156,000 156,000 125,000 25,000 25,000 25,000 10,000 0 248,400 433,400 ,589,695 ,882,115 ,471,810 0 ,471,810	

Support for the Center is requested for PFCNS employees:

** A-1 PI summer salary
** B-1 postdoctoral associates salary
(\$38K x 5)
** B-3 graduate student stipends
(\$18,425 x 12 = 221,100, no fringe benefits, fixed salary)
** B-4 GT udergradute
(\$10K x 5 at 20 hours/week = \$50,000, no fringe benefits)
** B-6 6 months salary for 4 long term ''Visiting Center Fellows'', affiliated with
academic and industrial institutions located in the Southeast region as well as nationally
and internationally.
(\$70,000 x 4 = \$280,000)

Infrastructure support:

** B-2 part-time technician computer hardware/software support
(9 months for general PFCNS computing, 3 months for supercomputing center)
** B-5 full-time administrator

** C- GT fringe benefits 24.1% of A,B-1,B-2,B-5,B-6

****** D- Supercomputer nodes in year 1 and supercomputer upgrade in year 3, postdoc workstations in year 3

** E-1, E-2 PFCNS faculty, postdoc and graduate student travel to national and international conferences.

(\$1K for domestic, \$1.5k for each overseas conference participation)

Annual Southeastern Nonlinear Science Workshop, short term visitors, distinguished lecturers, interns:

** F- invited lecturer and student travel, outside minority summer students stipends, workshop participant subsistence (most of the travel costs covered by the participants' grants).

(\$1.5k x 60 = \$90k) ** F-1 Out of the 60 participants 5 REU's will be covered by the grant (\$3k x 5 = \$15k)

** G-3 Consultant services (no fringe benefits)

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** G-6 graduate tuition
(12 x $4,140=$49,680, no MTD on tuition)
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** I: 49.7% of MTD 25% of stipends (F-1): Administrative Allotment

** M- Cost sharing: 15% GT faculty man-months: 95 = \$1,134k CNS funding commitment: \$294k