

# SUMMARY PROPOSAL BUDGET YEAR 1

ORGANIZATION <b>Georgia Tech Research Corporation - GA Institute of Technology</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Predrag Cvitanovic</b>				AWARD NO.	Proposed	Granted	
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 Funded Person-mos.		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. <b>Predrag Cvitanovic - PI/Director</b>	0.00	0.00	2.00	\$ 34,000			
2. <b>Leonid Bunimovich - CoPI/Professor</b>	0.00	0.00	0.00	0			
3. <b>Stephen P DeWeerth - CoPI/Associate professor</b>	0.00	0.00	0.00	0			
4. <b>William Ditto - Professor</b>	0.00	0.00	0.00	0			
5. <b>Ronald Fox - Professor, Chair</b>	0.00	0.00	0.00	0			
6. ( <b>10</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0			
7. ( <b>15</b> ) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00	34,000			
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( <b>5</b> ) POST DOCTORAL ASSOCIATES	60.00	0.00	0.00	201,800			
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00	63,700			
3. ( <b>12</b> ) GRADUATE STUDENTS				221,100			
4. ( <b>5</b> ) UNDERGRADUATE STUDENTS				53,000			
5. ( <b>1</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				38,300			
6. ( <b>4</b> ) OTHER				297,300			
TOTAL SALARIES AND WAGES (A + B)				909,200			
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1,062,259			
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
<b>Supercomputing node</b>			\$ 80,000				
TOTAL EQUIPMENT				80,000			
E. TRAVEL							
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				21,800			
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 ( <b>60</b> )				TOTAL PARTICIPANT 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			
TOTAL OTHER DIRECT COSTS				86,680			
H. TOTAL DIRECT COSTS (A THROUGH G)							
				1,371,939			
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
<b>25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comments Page)</b>							
TOTAL INDIRECT COSTS (F&A)							
				576,423			
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							
				1,948,362			
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)							
				0			
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)							
				\$ 1,948,362			
M. COST SHARING PROPOSED LEVEL \$ <b>295,000</b> AGREED LEVEL IF DIFFERENT \$							
PI / PD TYPED NAME & SIGNATURE*				DATE	FOR NSF USE ONLY		
<b>Predrag Cvitanovic</b>					INDIRECT COST RATE VERIFICATION		
ORG. REP. TYPED NAME & SIGNATURE*				DATE	Date Checked	Date Of Rate Sheet	
						Initials - ORG	

## SUMMARY PROPOSAL BUDGET COMMENTS - Year 1

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### Other Senior Personnel

Name - Title	Cal	Acad	Sumr	Funds Requested
-----	----	-----	-----	-----
Geronimo, Jeff - Professor	0.00	0.00	0.00	0
Ghrist, Robert - Assistant professor	0.00	0.00	0.00	0
Grigoriev, Roman - Assistant professor	0.00	0.00	0.00	0
Hernandez, Rigoberto - Assistant professor	0.00	0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00	0
Schatz, Michael - CoPI/Assistant professor	0.00	0.00	0.00	0
Shilnikov, Andrey - Assistant professor	0.00	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

### \*\* I- Indirect Costs

49.7% of MTD (Rate: 49.7000, Base 1152259)

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## SUMMARY PROPOSAL BUDGET YEAR 2

ORGANIZATION <b>Georgia Tech Research Corporation - GA Institute of Technology</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Predrag Cvitanovic</b>				AWARD NO.	Proposed	Granted	
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 Funded Person-mos.		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. <b>Predrag Cvitanovic - PI/Professor</b>	0.00	0.00	2.00	\$ 34,000			
2. <b>Leonid Bunimovich - CoPI/Professor</b>	0.00	0.00	0.00	0			
3. <b>Stephen P DeWeerth - CoPI/Associate professor</b>	0.00	0.00	0.00	0			
4. <b>William Ditto - Professor</b>	0.00	0.00	0.00	0			
5. <b>Ronald Fox - Professor/Chair</b>	0.00	0.00	0.00	0			
6. ( <b>10</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0			
7. ( <b>15</b> ) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00	34,000			
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( <b>5</b> ) POST DOCTORAL ASSOCIATES	60.00	0.00	0.00	201,800			
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00	63,700			
3. ( <b>12</b> ) GRADUATE STUDENTS				221,100			
4. ( <b>5</b> ) UNDERGRADUATE STUDENTS				53,000			
5. ( <b>1</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				38,300			
6. ( <b>4</b> ) OTHER				297,300			
TOTAL SALARIES AND WAGES (A + B)				909,200			
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1,062,259			
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL							
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					21,800		
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 ( <b>60</b> )				TOTAL PARTICIPANT 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			
TOTAL OTHER DIRECT COSTS				86,680			
H. TOTAL DIRECT COSTS (A THROUGH G)							
				1,291,939			
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
<b>25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comments Page)</b>							
TOTAL INDIRECT COSTS (F&A)					576,423		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							
				1,868,362			
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)							
				0			
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				\$ 1,868,362		\$	
M. COST SHARING PROPOSED LEVEL \$ <b>283,000</b>				AGREED LEVEL IF DIFFERENT \$			
PI / PD TYPED NAME & SIGNATURE*			DATE	FOR NSF USE ONLY			
<b>Predrag Cvitanovic</b>				INDIRECT COST RATE VERIFICATION			
ORG. REP. TYPED NAME & SIGNATURE*			DATE	Date Checked	Date Of Rate Sheet	Initials - ORG	

## SUMMARY PROPOSAL BUDGET COMMENTS - Year 2

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### Other Senior Personnel

Name - Title	Cal	Acad	Sumr	Funds Requested
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Geronimo, Jeff - Professor	0.00	0.00	0.00	0
Ghrist, Robert - Assistant professor	0.00	0.00	0.00	0
Grigoriev, Roman - Assistant professor	0.00	0.00	0.00	0
Hernandez, Rigoberto - Assistant professor	0.00	0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00	0
Schatz, Michael - CoPI/Assist.professor	0.00	0.00	0.00	0
Shilnikov, Andrey - Assistant professor	0.00	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

### \*\* I- Indirect Costs

49.7% of MTD (Rate: 49.7000, Base 1152259)

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## SUMMARY PROPOSAL BUDGET YEAR 3

ORGANIZATION <b>Georgia Tech Research Corporation - GA Institute of Technology</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Predrag Cvitanovic</b>				AWARD NO.	Proposed	Granted	
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 Funded Person-mos.		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. <b>Predrag Cvitanovic - PI/Professor</b>	0.00	0.00	2.00	\$ 34,000			
2. <b>Leonid Bunimovich - CoPI/Professor</b>	0.00	0.00	0.00	0			
3. <b>Stephen P DeWeerth - CoPI/Associate professor</b>	0.00	0.00	0.00	0			
4. <b>William Ditto - Professor</b>	0.00	0.00	0.00	0			
5. <b>Ronald Fox - Professor/Chair</b>	0.00	0.00	0.00	0			
6. ( <b>10</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0			
7. ( <b>15</b> ) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00	34,000			
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( <b>5</b> ) POST DOCTORAL ASSOCIATES	60.00	0.00	0.00	201,800			
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00	63,700			
3. ( <b>12</b> ) GRADUATE STUDENTS				221,100			
4. ( <b>5</b> ) UNDERGRADUATE STUDENTS				53,000			
5. ( <b>1</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				38,300			
6. ( <b>4</b> ) 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			
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
<b>workstations, supercomputer upgrade</b>				\$ 50,000			
TOTAL EQUIPMENT				50,000			
E. TRAVEL							
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)				21,800			
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 ( <b>60</b> )				TOTAL PARTICIPANT 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			
TOTAL OTHER DIRECT COSTS				86,680			
H. TOTAL DIRECT COSTS (A THROUGH G)				1,341,939			
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
<b>25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comments Page)</b>							
TOTAL INDIRECT COSTS (F&A)				576,423			
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)				1,918,362			
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)				0			
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				\$ 1,918,362		\$	
M. COST SHARING PROPOSED LEVEL \$ <b>290,000</b>				AGREED LEVEL IF DIFFERENT \$			
PI / PD TYPED NAME & SIGNATURE*			DATE	FOR NSF USE ONLY			
<b>Predrag Cvitanovic</b>				INDIRECT COST RATE VERIFICATION			
ORG. REP. TYPED NAME & SIGNATURE*			DATE	Date Checked	Date Of Rate Sheet	Initials - ORG	

## SUMMARY PROPOSAL BUDGET COMMENTS - Year 3

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### Other Senior Personnel

Name - Title	Cal	Acad	Sumr	Funds Requested
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Geronimo, Jeff - Professor	0.00	0.00	0.00	0
Ghrist, Robert - Assistant professor	0.00	0.00	0.00	0
Grigoriev, Roman - Assistant professor	0.00	0.00	0.00	0
Hernandez, Rigoberto - Assistant professor	0.00	0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00	0
Schatz, Michael - CoPI/Assistant professor	0.00	0.00	0.00	0
Shilnikov, Andrey - Assistant professor	0.00	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

### \*\* I- Indirect Costs

49.7% of MTD (Rate: 49.7000, Base 1152259)

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## SUMMARY PROPOSAL BUDGET YEAR 4

ORGANIZATION <b>Georgia Tech Research Corporation - GA Institute of Technology</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Predrag Cvitanovic</b>				AWARD NO.	Proposed	Granted	
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 Funded Person-mos.		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. <b>Predrag Cvitanovic - PI/Professor</b>	0.00	0.00	2.00	\$ 34,000			
2. <b>William Ditto - Professor</b>	0.00	0.00	0.00	0			
3. <b>Ronald Fox - Professor/Chair</b>	0.00	0.00	0.00	0			
4. <b>Jeff Geronimo - Professor</b>	0.00	0.00	0.00	0			
5. <b>Robert Ghrist - Assistant professor</b>	0.00	0.00	0.00	0			
6. ( <b>6</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0			
7. ( <b>11</b> ) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00	34,000			
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( <b>5</b> ) POST DOCTORAL ASSOCIATES	60.00	0.00	0.00	201,800			
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00	63,700			
3. ( <b>12</b> ) GRADUATE STUDENTS				221,100			
4. ( <b>5</b> ) UNDERGRADUATE STUDENTS				53,000			
5. ( <b>1</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				38,300			
6. ( <b>4</b> ) OTHER				297,300			
TOTAL SALARIES AND WAGES (A + B)				909,200			
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1,062,259			
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL							
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					21,800		
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 ( <b>60</b> )				TOTAL PARTICIPANT 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			
TOTAL OTHER DIRECT COSTS				86,680			
H. TOTAL DIRECT COSTS (A THROUGH G)							
				1,291,939			
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
<b>25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comments Page)</b>							
TOTAL INDIRECT COSTS (F&A)					576,423		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							
				1,868,362			
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)							
				0			
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)				\$ 1,868,362		\$	
M. COST SHARING PROPOSED LEVEL \$ <b>280,000</b>				AGREED LEVEL IF DIFFERENT \$			
PI / PD TYPED NAME & SIGNATURE*			DATE	FOR NSF USE ONLY			
<b>Predrag Cvitanovic</b>				INDIRECT COST RATE VERIFICATION			
ORG. REP. TYPED NAME & SIGNATURE*			DATE	Date Checked	Date Of Rate Sheet	Initials - ORG	

## SUMMARY PROPOSAL BUDGET COMMENTS - Year 4

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### Other Senior Personnel

Name - Title -----	Cal ----	Acad -----	Sumr -----	Funds Requested -----	
Grigoriev, Roman - Assistant professor	0.00		0.00	0.00	0
Hernandez, Rigoberto - Assistant professor	0.00		0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00		0
Shilnikov, Andrey - Assistant professor	0.00		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

### \*\* I- Indirect Costs

49.7% of MTD (Rate: 49.7000, Base 1152259)

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# SUMMARY PROPOSAL BUDGET YEAR 5

ORGANIZATION <b>Georgia Tech Research Corporation - GA Institute of Technology</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Predrag Cvitanovic</b>				AWARD NO.	Proposed	Granted	
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 Funded Person-mos.		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. <b>Predrag Cvitanovic - PI/Professor</b>	0.00	0.00	2.00	\$ 34,000			
2. <b>Leonid Bunimovich - CoPI/Professor</b>	0.00	0.00	0.00	0			
3. <b>Stephen P DeWeerth - CoPI/Associate professor</b>	0.00	0.00	0.00	0			
4. <b>William Ditto - Professor</b>	0.00	0.00	0.00	0			
5. <b>Ronald Fox - Professor/Chair</b>	0.00	0.00	0.00	0			
6. ( <b>10</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0			
7. ( <b>15</b> ) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	2.00	34,000			
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( <b>5</b> ) POST DOCTORAL ASSOCIATES	60.00	0.00	0.00	201,800			
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	12.00	0.00	0.00	63,700			
3. ( <b>12</b> ) GRADUATE STUDENTS				221,100			
4. ( <b>5</b> ) UNDERGRADUATE STUDENTS				53,000			
5. ( <b>1</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				38,300			
6. ( <b>4</b> ) OTHER				297,300			
TOTAL SALARIES AND WAGES (A + B)				909,200			
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)				1,062,259			
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT					0		
E. TRAVEL							
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)					21,800		
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 ( <b>60</b> )				TOTAL PARTICIPANT 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		
TOTAL OTHER DIRECT COSTS					86,680		
H. TOTAL DIRECT COSTS (A THROUGH G)							
					1,291,939		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
<b>25% of F1 (Rate: 25.0000, Base: 15000) (Cont. on Comments Page)</b>							
TOTAL INDIRECT COSTS (F&A)					576,423		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							
					1,868,362		
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)							
					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)							
					\$ 1,868,362	\$	
M. COST SHARING PROPOSED LEVEL \$ <b>280,000</b>				AGREED LEVEL IF DIFFERENT \$			
PI / PD TYPED NAME & SIGNATURE*			DATE	FOR NSF USE ONLY			
<b>Predrag Cvitanovic</b>				INDIRECT COST RATE VERIFICATION			
ORG. REP. TYPED NAME & SIGNATURE*			DATE	Date Checked	Date Of Rate Sheet	Initials - ORG	

## SUMMARY PROPOSAL BUDGET COMMENTS - Year 5

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### Other Senior Personnel

Name - Title	Cal	Acad	Sumr	Funds Requested
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Geronimo, Jeff - Professor	0.00	0.00	0.00	0
Ghrist, Robert - Assistant professor	0.00	0.00	0.00	0
Grigoriev, Roman - Assistant professor	0.00	0.00	0.00	0
Hernandez, Rigoberto - Assistant professor	0.00	0.00	0.00	0
Neitzel, G. Paul - Professor	0.00	0.00	0.00	0
Schatz, Michael - CoPI/Assistant professor	0.00	0.00	0.00	0
Shilnikov, Andrey - Assistant professor	0.00	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

### \*\* I- Indirect Costs

49.7% of MTD (Rate: 49.7000, Base 1152259)

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# SUMMARY PROPOSAL BUDGET Cumulative

ORGANIZATION <b>Georgia Tech Research Corporation - GA Institute of Technology</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Predrag Cvitanovic</b>				AWARD NO.	Proposed	Granted	
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 Funded Person-mos.		Funds Requested By proposer	Funds granted by NSF (if different)
	CAL	ACAD	SUMR				
1. <b>Predrag Cvitanovic - PI/Director</b>	0.00	0.00	10.00	\$ 170,000			
2. <b>Leonid Bunimovich - CoPI/Professor</b>	0.00	0.00	0.00	0			
3. <b>Stephen P DeWeerth - CoPI/Associate professor</b>	0.00	0.00	0.00	0			
4. <b>William Ditto - Professor</b>	0.00	0.00	0.00	0			
5. <b>Ronald Fox - Professor/Chair</b>	0.00	0.00	0.00	0			
6. ( <b>10</b> ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)	0.00	0.00	0.00	0			
7. ( <b>15</b> ) TOTAL SENIOR PERSONNEL (1 - 6)	0.00	0.00	10.00	170,000			
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( <b>25</b> ) POST DOCTORAL ASSOCIATES	300.00	0.00	0.00	1,009,000			
2. ( <b>5</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)	60.00	0.00	0.00	318,500			
3. ( <b>60</b> ) GRADUATE STUDENTS				1,105,500			
4. ( <b>25</b> ) UNDERGRADUATE STUDENTS				265,000			
5. ( <b>5</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)				191,500			
6. ( <b>20</b> ) OTHER				1,486,500			
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		
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
			\$ 130,000				
TOTAL EQUIPMENT					130,000		
E. TRAVEL					109,000		
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)							
2. FOREIGN					156,000		
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS	\$ 300,000						
2. TRAVEL	50,000						
3. SUBSISTENCE	50,000						
4. OTHER	50,000						
TOTAL NUMBER OF PARTICIPANTS	( 300 )			TOTAL PARTICIPANT COSTS	450,000		
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES				125,000			
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION				25,000			
3. CONSULTANT SERVICES				25,000			
4. COMPUTER SERVICES				10,000			
5. SUBAWARDS				0			
6. OTHER				248,400			
TOTAL OTHER DIRECT COSTS				433,400			
H. TOTAL DIRECT COSTS (A THROUGH G)					6,589,695		
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
TOTAL INDIRECT COSTS (F&A)					2,882,115		
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)					9,471,810		
K. RESIDUAL FUNDS (IF FOR FURTHER SUPPORT OF CURRENT PROJECTS SEE GPG II.D.7.j.)					0		
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)					\$ 9,471,810	\$	
M. COST SHARING PROPOSED LEVEL \$ <b>1,428,000</b>				AGREED LEVEL IF DIFFERENT \$			
PI / PD TYPED NAME & SIGNATURE*			DATE	FOR NSF USE ONLY			
<b>Predrag Cvitanovic</b>				INDIRECT COST RATE VERIFICATION			
ORG. REP. TYPED NAME & SIGNATURE*			DATE	Date Checked	Date Of Rate Sheet	Initials - ORG	

## Budget Justification Page

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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 undergraduate

(\$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)

\*\* G-6 graduate tuition

(12 x \$4,140=\$49,680, no MTD on tuition)

\*\* 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

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## Budget Justification Page

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