

# Georgia Tech Sponsored Research

<b>Project</b>	G-41-X97	
<b>Project director</b>	Ditto	William
<b>Research unit</b>	Physics	
<b>Title</b>	Stochastic Resonance in Communications	
<b>Project date</b>	10/8/1998	

B-41-X97  
#1

END-OF-THE-YEAR REPORT

PUBLICATIONS/PATENTS/PRESENTATIONS/HONORS/STUDENTS REPORT

for

GRANT or CONTRACT: N66001-98-M-0331

PR Number 99prxxxxx (?)

**STOCHASTIC RESONANCE IN COMMUNICATIONS**

Professor William L. Ditto  
Applied Chaos Laboratory  
School of Physics  
Georgia Institute of Technology  
Atlanta, GA 30332-0430

5/05/99

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OFFICE OF NAVAL RESEARCH  
PUBLICATIONS/PATENTS/PRESENTATIONS/HONORS REPORT  
PART I

PR Number:

Contract/Grant Number: N66001-98-M-0331

Contract/Grant Title: STOCHASTIC RESONANCE IN COMMUNICATIONS

Principal Investigator: William L. Ditto

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- a. Number of papers submitted to refereed journals, but not published: 1
- b. + Number of papers published in refereed journals (for each, provide a complete citation): 3
- c. + Number of books or chapters submitted, but not yet published: 0
- d. + Number of books or chapters published (for each, provide a complete citation): 0
- e. + Number of printed technical reports/non-refereed papers (for each, provide a complete citation): 0
- f. Number of patents filed: 1
- g. + Number of patents granted (for each, provide a complete citation): 0
- h. + Number of invited presentations (for each, provide a complete citation): 1
- i. + Number of submitted presentations (for each, provide a complete citation): 1
- j. + Honors/Awards/Prizes for contract/grant employees (list attached): 1  
(This might include Scientific Society Awards/Offices, Selection as Editors, Promotions, Faculty Awards/Offices, etc.)
- k. Total number of Full-time equivalent Graduate Students and Post-Doctoral associates supported during this period, under this PR number: 4  
Graduate Students: 3  
Post-Doctoral Associates: 1  
including the number of,  
Female Graduate Students: 0  
Female Post-Doctoral Associates: 0  
the number of  
Minority\* Graduate Students: 0  
Minority\* Post-Doctoral Associates: 0  
and, the number of  
Asian Graduate Students: 0  
Asian Post-Doctoral Associates: 0
- l. + Other funding (list agency, grant title, amount received this year, total amount, period of performance and a brief statement regarding the relationship of that research to your ONR grant)

**b. Papers submitted to refereed journals, but not published (1)**

1. "Theory of Controlling Stochastic Resonance", Markus Löcher, Kurt Wiesenfeld, Joseph Neff, Adi Bulsara, Luca Gammaitoni, and William Ditto, submitted to Phys. Rev. E (1999).

**b. Papers published in refereed journals (3)**

1. "Stochastic Resonance in coupled nonlinear dynamic elements", M. Löcher, D. Cigna, E. R. Hunt, G. A. Johnson, F. Marchesoni, L. Gammaitoni, A. R. Bulsara and M. E. Inchiosa, CHAOS 8, 604 (September 1998).
2. "Noise enhanced propagation", J. F. Lindner, S. Chandramouli, A.R. Bulsara, M. Löcher, and W. L. Ditto, Phys. Rev. Lett. 81, 5048 (7 December 1998).
3. "Controlling Stochastic Resonance", Luca Gammaitoni, Markus Löcher, Adi Bulsara, Peter Hänggi, Joseph Neff, Kurt Wiesenfeld, William Ditto, and Mario E. Inchiosa, Phys. Rev. Lett. 82, 4574 (7 June 1999).

**d. Books or chapters published (0)**

**e. Printed technical reports/non-refereed papers (0)**

**f. Patents filed (1)**

1. "Controlled Stochastic Resonance", Luca Gammaitoni, Markus Löcher, Adi Bulsara, Peter Hänggi, Joseph Neff, Kurt Wiesenfeld, William Ditto, and Mario E. Inchiosa.

**g. Patents granted (0)**

**h. Invited presentations (1)**

1. "Noise Sustained Patterns: Evolving vs. Static Structures," APS Centennial Meeting, Atlanta, GA, March 20-26, 1999.

**i. Submitted presentations (1)**

1. "Controlled Stochastic Resonance," Dynamics Days 99, Georgia Tech, Atlanta, GA, Jan 5-9, 1999.

**j. Honors/Awards/Prizes for contract/grant employees (1)**

1. Full Professor (1999).

**j. Other funding**

"Stochastic Resonance in Phase Locked  
Loops"

?/99 - ?/2000? \$ ???

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