

ENGINEERING COLLEGE COUNCIL

College of Engineering

Steven Strogatz

Professor

Theoretical & Applied Mechanics

IGERT

IGERT =

Integrative Graduate Education and
Research Traineeships

Emphasis on:

- Interdisciplinary Work
- Team Projects
- Breadth

17 grants / 660 applicants, in all fields funded by NSF

U.S. NEWS RANKINGS IN NONLINEAR DYNAMICS/CHAOS (1999)

1. University of Maryland-College Park
1. University of Texas-Austin
3. Cornell University (NY)
3. University of Chicago
5. Georgia Institute of Technology
6. University of California-Santa Barbara
7. Massachusetts Institute of Technology
7. University of California-San Diego
7. University of Illinois-Urbana-Champaign
10. Princeton University (NJ)
10. University of California-Berkeley

OUR FIRST IGERT PROGRAM (1999-2004)

“Nonlinear Systems”

\$2.2 Million, 60 student-years of fellowships,
over 5 years

2-year fellowships, \$20K stipend, tuition

Open to incoming students and students
already at Cornell

Eligible: US citizens, nationals, permanent
resident aliens

OUR FIRST IGERT PROGRAM (1999-2004)

Requirements:

- Two- semester course in complex nonlinear systems
- Interdisciplinary team research project (publishable)
- Summer internship in lab, hospital, industry, Wall Street (e.g., Fox, Girvan, Maloney...)
- Attend colloquia and informal weekly seminars
- Plus: Complete the usual Ph.D. requirements

YEAR 1 STUDENTS

10 students - 3 women, 7 men

- Physics (3)
- Applied Mathematics (2)
- Chemistry (1)
- Mathematics (1)
- Mechanical and Aerospace Engineering (1)
- Theoretical and Applied Mechanics (1)

YEAR 2 STUDENTS *(entered in Fall 2000)*

10 students - 3 women, 7 men

- Physics (2)
- Sociology (2)
- Applied Math (2)
- Theoretical & Applied Mechanics (1)
- Chemistry (1)
- Chemical Engineering (1)
- Math (1)

45 incoming students considered; 20 offers
8 acceptances (40% yield)
5 continuing students considered; 5 offers
3 accepted + 2 will defer

YEAR 3 STUDENTS *(entered in Fall 2001)*

11 students - 3 women, 7 men, 1 minority

- Physics (4)
- Applied Math (3)
- Theoretical and Applied Mechanics (1)
- Civil and Environmental Engineering (1)
- Neurobiology (1)
- Crop and Soil Science (1)

OUR SECOND IGERT PROGRAM

(Renewed for 5 more years)

Main changes:

- 1) New simulation course (Sethna, Myers)
- 2) Focused research topics, leading to thesis

Pattern Formation:

Gilmour, Rand, Strogatz, Steen...

Complex Networks:

Strogatz, Heckathorn, Macy, Kleinberg, ...

Gene Regulation:

Sethna, Clark, Guckenheimer, Cerione, ...

Machines and Locomotion:

Valero-Cuevas, Ruina, Guckenheimer, Wang, D'Andrea, ...