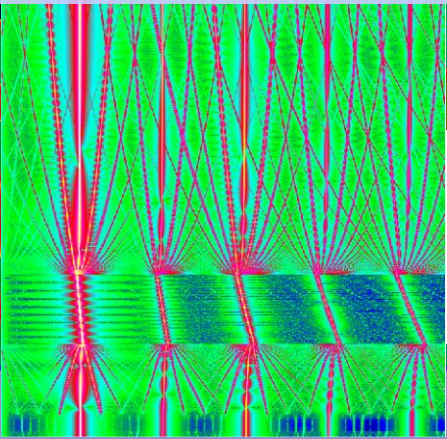
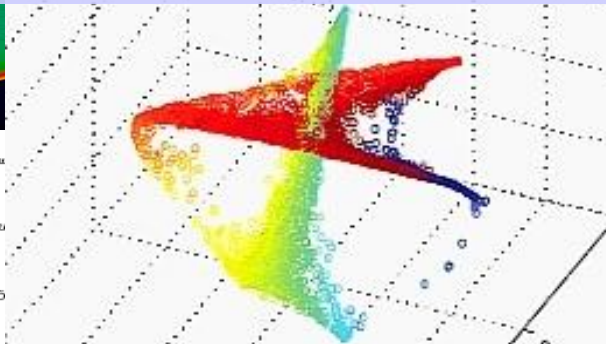


# Pure and Applied Mathematics Graduate Study at Duke University



$$\begin{aligned}
 E_1^{p,p} &\cong \bigoplus_{\#\Delta_p^p=p+1} H(n_p^p; \bigoplus_{w_p \in W_p} H(n_p; E)_{w_p} \otimes I_{p,w}) \\
 &\cong \bigoplus_{\#\Delta_p^p=p+1} \bigoplus_{w_p \in W_p} \bigoplus_{w_p^p \in W_p^p} H(n_p^p; H(n_p; E)_{w_p}) \\
 &\cong \bigoplus_{w \in W_p} H(n_p; E)_w \otimes \bigoplus_{\#\Delta_p^p=p+1} I_{p,w} H(c(|\Delta_p^p)
 \end{aligned}$$



## Faculty Research Expertise

### Geometry

**Algebraic Geometry:** P. Aspinwall, R. Hain, E. Miller, C. Schoen • **Symplectic Geometry:** L. Ng • **Differential Geometry and Geometric Analysis:** H. Bray, A. Petters, L. Saper, M. Stern

### Topology

**Algebraic Topology:** R. Hain, W. Pardon, L. Saper • **Geometric Topology:** J. Harer, L. Ng

### Algebra & Number Theory

R. Calderbank, J. Getz, R. Hain, E. Miller, L. Saper, C. Schoen

### Mathematical Physics

**General Relativity:** H. Bray, A. Petters • **String Theory:** P. Aspinwall, R. Plesser, M. Stern

### Probability & Stochastic Analysis

R. Calderbank, R. Durrett, J. Lu, M. Maggioni, J. Mattingly, S. Mukherjee, J. Nolen

### Analysis & Partial Differential Equations

**Analysis:** M. Reed • **Applied Harmonic Analysis:** R. Calderbank, I. Daubechies, M. Maggioni • **Partial Differential Equations:** T. Beale, J.-G. Liu, J. Lu, J. Mattingly, J. Nolen, M. Stern, T. Witelski • **Integrable Systems:** S. Venakides, X. Zhou

### Numerical Analysis & Scientific Computing

**Multiscale Methods:** I. Daubechies, A. Layton, J.-G. Liu, J. Lu, M. Maggioni, J. Mattingly, J. Nolen • **Computational Geometry and Topology:** P. Aspinwall, J. Harer, E. Miller

### Mathematical Biology

**Computational and Systems Biology:** J. Harer, E. Miller, S. Mukherjee • **Cancer Modeling:** R. Durrett • **Mathematical Physiology and Cell Biology:** A. Layton, H. Layton, J. Mattingly, M. Reed, S. Venakides

### Fluid Dynamics

T. Beale, J.-G. Liu, J. Mattingly, T. Witelski

### The Graduate Program

The graduate program in mathematics at Duke University provides a stimulating and supportive atmosphere for learning and research. Our graduate students pursue studies in pure or applied fields, leading to careers in academics, industry, and business. All doctoral students making satisfactory progress receive full financial support for five years of study.

### Duke University

Duke University is consistently ranked in the top ten universities in the United States. Its outstanding computational resources and extensive library collections serve world-class research across the sciences and humanities. The university is located in the Raleigh-Durham-Chapel Hill Triangle area of North Carolina, a thriving hub of technology and research.

### The Graduate Faculty

Advanced courses and lively seminar series are held in the areas of our faculty's expertise in pure and applied mathematics. Many faculty members also participate in interdisciplinary research collaborations in subjects such as biology, chemistry, computer science, engineering, physics, and statistics.

For more information, visit

<http://www.math.duke.edu/graduate/>  
or write to [dgs-math@math.duke.edu](mailto:dgs-math@math.duke.edu)

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Application Deadline: January 4, 2013