

MILLIMAN LECTURES



Charles Fefferman



Peter Sarnak

Each year the Mathematics Department invites a distinguished mathematician to visit the department for a week and deliver a series of lectures called the Milliman Lectures. This Lectureship is funded by the Milliman Fund, an endowed fund established in 1983 by a gift from Grace Milliman Pollock and her husband, S. Wilson Pollock, in honor of Mrs. Pollock's brother, W. A. Milliman, who received his Mathematics degree from the University of Washington in 1926 and who was a founder of the actuarial firm of Milliman and Robertson.

The 2000-2001 Milliman Lecturer was Charles Fefferman of Princeton University, who visited the department during the week of May 14-18. He gave a series of three lectures on "Unsolved problems of fluid mechanics." Known as an out-

standing speaker, Charles Fefferman drew a large audience from a variety of disciplines. He gave a masterful exposition of the research related to existence and smoothness of solutions for the Navier-Stokes equations — one of the seven "Millennium prize problems" named by the Clay Mathematics Institute. Quoting from the official problem description — authored by Charles Fefferman himself:

"Waves follow our boat as we meander across the lake, and turbulent air currents follow our flight in a modern jet. Mathematicians and physicists believe that an explanation for and the prediction of both the breeze and the turbulence can be found through an understanding of solutions to the Navier-Stokes equations..."

Charles Fefferman has received many awards and honors for his work, among them a Fields Medal in 1978, usually regarded as the mathematical equivalent of a Nobel Prize.

The 2001-2002 Milliman Lecturer was Peter Sarnak of the Institute for Advanced Study and New York University. He visited the department during the week of October 15-19 and delivered three lectures on "Families of L-functions and applications." The individual lectures were entitled

1. Introduction and overview
2. Hilbert's eleventh problem
3. High energy eigenstates on an arithmetic surface.

L-functions, starting from Riemann's zeta function, play a central role in number theory. In his lectures, Peter Sarnak demonstrated some unexpected and exciting connections between number theory, geometric analysis, and mathematical physics. Professor Sarnak is known for his pioneering work related to the Riemann Hypothesis, perhaps, the most famous unsolved problem in Mathematics. Among his many honors is the Polya Prize of the Society of Industrial and Applied Mathematics, awarded in 1998.

In addition to the Milliman Lectures, Peter Sarnak spoke at the "Brown Bag on teaching and learning" seminar, where he described the undergraduate mathematics research laboratory that he had put together at Princeton.

The 2002-2003 Milliman Lecturer will be János Kollár of Princeton University.

