KAVLI INSTITUTE FOR THEORETICAL PHYSICS

Presents

The Fifty-Fifth KITP Public Lecture

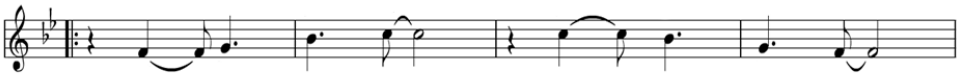
Sponsored by Friends of KITP

Theo Geisel

~ Rhythms & Algorithms ~

Physics and Music

Even the best musicians do not play rhythms with perfect precision. Slight deviations from an ideal beat pattern are a fundamental characteristic of music played by humans. In this public lecture, using techniques from statistical physics and chaos theory, Prof. Geisel will discuss the laws underlying rhythmic fluctuations and their role in musical perception. With acoustic demonstrations and musical examples ranging from J. S. Bach's *The Art of Fugue* to stochastic music, he will highlight the role of long-range correlations in music and its connection to information processing in the brain. One application of these findings is a "humanizing algorithm" which allows computer-performed music to sound more human.



About the Speaker

THEO GEISEL is managing director of the Max Planck Institute for Dynamics and Self-Organization and founder of the Bernstein Center for Computational Neuroscience in Göttingen, Germany. Trained as a theoretical physicist, he held faculty positions in Würzburg and Frankfurt before arriving in Göttingen. In 1994, he was recognized with the Leibniz Prize. Well known for his research on nonlinear and chaotic systems, he has worked in fields that include quantum chaos, the spread of epidemics, and theoretical brain research. As a student, he showed similar versatility, neglecting his studies (from time to time) in favor of the saxophone and flute, and performing in styles ranging from avant-garde jazz to renaissance music. He even recorded a jazz album with the somewhat Seussianly named combo The Flohzirkus ("flea circus") of August Stockinger.

Wednesday, February 19, 2014

8:00 PM (reserved seats held until 7:50 PM)

Kavli Institute for Theoretical Physics, Main Seminar Room

Admission is Free

RSVP for Reserved Seating

by February 14, 2014

at:

http://www.kitp.ucsb.edu/public-lecture-rsvp

or call

(805) 893-6363

Reserved seats are held until 7:50 PM

To make special arrangements to accommodate a disability, call the KITP at the number above.

LOT 10 PARKING

From the roundabout at Hwy 217, turn right onto Mesa Rd, merge into the left lane, and turn left at the first light into Lot 10 parking structure. **PARK**, **BUY a $4 permit** from the dispenser (near the elevator and stairs), and **DISPLAY PERMIT** on dashboard. The KITP is right next door in Kohn Hall.

The KITP gratefully acknowledges its many friends in the community.

KITP Public Lecture Series