KAVLI INSTITUTE FOR THEORETICAL PHYSICS

Presents

The Forty-Fifth KITP Public Lecture

Sponsored by Friends of KITP

Bonnie Bassler

How Bacteria Talk to Each Other

Bacteria communicate with one another using small chemical molecules that they release into the environment. These molecules travel from cell to cell and the bacteria have receptors on their surfaces that allow them to detect and respond to the build up of the molecules. This process of cell-to-cell communication in bacteria is called "Quorum Sensing" and it allows bacteria to synchronize behavior on a population-wide scale. Bacterial behaviors controlled by quorum sensing are usually ones that are unproductive when undertaken by an individual bacterium acting alone but become effective when undertaken in unison by the group. For example, quorum sensing controls virulence, sporulation, and the exchange of DNA. Thus, quorum sensing is a mechanism that allows bacteria to function as multi-cellular organisms. Cell-to-cell communication in bacteria was likely one of the first steps in the evolution of higher organisms. Current biomedical research is focused on the development of novel anti-bacterial therapies aimed at interfering with quorum sensing. Such therapies could be used to control bacterial pathogenicity.

About the Speaker

BONNIE BASSLER is a member of the National Academy of Sciences and the American Academy of Arts and Sciences. She is a Howard Hughes Medical Institute Investigator and the Squibb Professor of Molecular Biology at Princeton University. Bassler received a B.S. in Biochemistry from the University of California at Davis, and a Ph.D. in Biochemistry from the Johns Hopkins University. She performed postdoctoral work in Genetics at the Agouron Institute, and she joined the Princeton faculty in 1994. The research in her laboratory focuses on the molecular mechanisms that bacteria use for intercellular communication, called quorum sensing. Dr. Bassler has been awarded numerous prestigious awards including a MacArthur Foundation Fellowship and most recently the 2009 Wiley Prize in Biomedical Science for her paradigm-changing scientific research.

Wednesday, January 19, 2011

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

Kavli Institute for Theoretical Physics, Main Seminar Room

Admission is Free

Seating is by RSVP only at:

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

or call

(805) 893-6349

by Jan. 14, 2011

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 left lane, turn left at the first light into Lot 10 parking structure. **PARK**, **BUY a $3 permit** from the dispenser (near the elevator and stairs), **DISPLAY PERMIT** on dashboard. The KITP is right next door.

The KITP gratefully acknowledges its many friends in the community.

KITP Public Lecture Series