JOINT SEMINAR

Department of Physics and Astronomy
Center for Theoretical Biological Physics

"Spatial Structure in Bacterial Biofilms

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12:30 - 1:30 PM
BRC, 10th Floor, Rm 1060 A/B

Abstract: Biofilms are communities of interacting single-celled organisms that are bound to a surface and to each other by extracellular polymers that give the biofilm its mechanical properties and spatial structure.

(1) We have recently found that extracellular polymers also influence the behavior of single cells attached to surfaces, before a biofilm has formed. This suggests that single-celled measurables could serve as a predictive readout for biofilm structure and mechanics. This would be a significant advance, because biofilm mechanics is important for biofilm removal yet often difficult or impossible to measure.

(2) We have recently developed a method for controlling the spatial arrangement of bacteria on surfaces with single-cell resolution using laser trapping. We demonstrate that this approach can be used to study the effects of spatial structure on bacterial behaviors.