

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Spatiotemporal evolution of bacterial biofilm colonies JAMES WILKING, Montana State University, STEPHAN KOEHLER, NAVEEN SINHA, SEAS, Harvard, AGNESE SEMINARA, Institut Pasteur, Paris France, MICHAEL BRENNER, DAVID WEITZ, SEAS, Harvard — Many bacteria on earth live in surface-attached communities known as biofilms. Gene expression in a biofilm is typically varied, resulting in a variety of phenotypes within a single film. These phenotypes play a critical role in biofilm physiology and development. We use time-resolved, wide-field fluorescence microscopy to image triple-labeled fluorescent *Bacillus Subtilis* colonies grown on agar to determine in a non-invasive fashion the evolving phenotypes. We infer their transition rates from the resulting spatiotemporal maps of gene expression. Moreover, we correlate these transition rates with local measurements of nutrient concentration to determine the influence of extracellular signals on gene expression.

Stephan Koehler
SEAS, Harvard University

Date submitted: 15 Nov 2013

Electronic form version 1.4