

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**Atomic Force Microscope Investigations of Biofilms Treated with Gas Discharge Plasmas**<sup>1</sup> KURT VANDERVOORT, GREGORY STOUGH, Physics Department, California State Polytechnic University, Pomona, CA, ANNA ZELAYA, GRACIELA BRELLES-MARINO, Biology Department, California State Polytechnic University, Pomona, CA — We present investigations of bacterial biofilms before and after treatment with gas discharge plasmas. Gas discharge plasmas represent a way to inactivate bacteria under conditions where conventional disinfection methods are often ineffective. These conditions involve bacteria in biofilm communities, where cooperative interactions between cells make organisms less susceptible to standard inactivation methods. In this study, biofilms formed by the opportunistic bacterium *Pseudomonas aeruginosa* were imaged before and after plasma treatment using an atomic force microscope (AFM). Cell morphology and biofilm structure were investigated through AFM images obtained for various plasma exposure times. Also, structural properties of the biofilms were studied through force-distance curves by pressing the AFM tip into the film surface while monitoring the cantilever deflection.

<sup>1</sup>Funding was provided by an NSF-NUE grant 0406533 and by an NIH-SCORE grant 1SC3GM088070-01. In addition, Anna Zelaya acknowledges support from the NIH MBRS Research Initiative for Scientific Enhancement (RISE) Program, grant 2R25GM061190-05A2.

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Date submitted: 18 Nov 2009

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