Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

The Dependency in the Elasticity of the *Saccharomyces cerevisiae* Cell Wall upon Cell Viability and Membrane Integrity[1] DACIA MCPHERSON, CHENHUI ZHU, YOUNGWOO YI, NOEL CLARK, University of Colorado
— In this study the elastic spring constant of the yeast cell wall is probed with the atomic force microscope (AFM) under variable conditions. Cells were sequentially analyzed in rich growth medium (YPD), a 0.8 M NaCl rich growth medium solution and an injection of 0.01% sodium azide solution. Cells in late log phase, which have variable diameters within three to five microns, were immobilized on a patterned silicon substrate with holes approximately 3.8um in diameter and 1.5um deep that was functionalized with polyethylenimine prior to cell application. Force curves were taken moving laterally across the cell in one dimension after exposure to each medium. Spring constants of the cells, calculated from force curves, displayed a positional dependency and marked differences in high osmolarity medium and after the injection of sodium azide. This study demonstrates the ability of the AFM to investigate changes in cell morphology and correlate those findings to underlying physiological processes.

[1]This work was supported by NSF MRSEC Grant DMR-0213918.

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Date submitted: 02 Dec 2006 Electronic form version 1.4