

Abstract Submitted
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Observation of Biodegradation of Cellulose Fibers Using Surface Plasmon Resonance Imaging OLEH M. TANCHAK, SCOTT ALLEN, Department of Physics, University of Guelph, DARRELL COCKBURN, ANTHONY J. CLARKE, Department of Molecular and Cellular Biology, University of Guelph, JACEK LIPKOWSKI, Department of Chemistry, University of Guelph, JOHN R. DUTCHER, Department of Physics, University of Guelph — Cellulose is the most abundant biopolymer on Earth and can provide a renewable supply of ethanol fuel to replace fossil fuels. A fundamental understanding of the mechanisms of the biodegradation of cellulose is essential to the development novel enzyme systems that can efficiently and selectivity degrade a variety of biomass substrates. A novel Surface Plasmon Resonance Imaging (SPRI) instrument was used to study the biodegradation of cellulose fibers anchored to a thiolated gold surface. The kinetics of binding of the inactive enzymes to cellulose fibers and their digestion by catalytically-active homologs will be presented.

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