

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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