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**Imaging the Enzymatic Degradation of Individual Bundles of Cellulose Fibers** SCOTT ALLEN, OLEH TANCHAK, AMANDA QUIRK, ANTHONY CLARKE, JACEK LIPKOWSKI, JOHN DUTCHER, University of Guelph — An automated angle scanning surface plasmon resonance (SPR) imaging experiment was designed and constructed. The experiment enables the accurate tracking of multiple regions of interest (ROIs) on the sample as a function of time. This allows the accurate tracking with time of changes to surfaces that are inherently laterally inhomogeneous. We have used the SPR imaging experiment to study the interaction of enzymes with bundles of cellulose fibers that have been heterogeneously distributed on a gold film coated with a thin layer of thioglucose. These data have allowed us to monitor the adsorption of the enzymes and subsequent degradation of the cellulose fibers in real time on samples that are of relevance to the cellulosic ethanol industry.

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