

388a Protein Kinetics Via Spectroscopic Imaging on a Microfluidic Chip

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Microfluidic devices can be invaluable tools to minimize the amount of analyte or sample needed for a certain experiment. Sample conservation is of special interest when analyzing precious materials, such as proteins that can only be obtained in very small quantities after extensive purification efforts. The present work demonstrates the use of microfluidic devices for time-resolved spectroscopic studies. Time-resolved spectroscopy can be achieved in microfluidic devices by activating a sample in a channel and using the length down the channel as time resolution. This talk will cover the design, fabrication and operation of microfluidic chips that enable rapid mixing of samples while reducing sample dispersion due to parabolic flow profiles. In addition, the fabrication of a custom calcium fluoride flow cell, transparent in the IR, will be presented. The results of time-resolved UV/Vis and FTIR studies of myoglobin and cytochrome oxidase obtained with these microfluidic chips will be discussed.