Microreactors have garnered widespread attention for their tunability and precise control of synthetic parameters to efficiently produce target species. Despite associated advances, a lack of on-line detection and optimization methods has stalled the progression of microfluidic reactors. Here we employ and characterize a total internal reflection transient absorption microscopy (TIRTAM) instrument to image excited state dynamics on a continuous flow device. The experiments presented demonstrate the capability to discriminate between different chromophores as well as in differentiating the effects of local chemical environments that a chromophore experiences. This work presents the first such on-line transient absorption measurements and provides a new direction for the advancement and optimization of chemical reactions in microfluidic devices.

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Brandon Colon received his B.S. in Chemistry from the University of West Florida in Pensacola, FL. During his undergraduate career, he conducted research on ZnO quantum dots and fabricated quantum dot thin film under the tutelage of Dr. Karen Molek and Dr. Alan Schrock. In June 2016, he started graduate school at the University of Tennessee (UTK) and subsequently joined Dr. Tessa Calhoun's group. His research focuses on instrumental innovation in the field of ultrafast microscopy. Brandon had previously received the MARC and ACS scholarships during his undergraduate degree, and is a winner of the 2019 BoV poster competition in the Department of Chemistry UTK. He is interested in pursuing an administrative role with the goal of eventually establishing a high school focused on STEM education.