

Abstract Submitted  
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**Study on the rise time of electroosmotic flow in microcapillary tubes** CUIFANG KUANG, GUIREN WANG, University of South Carolina — We studied the rise time of electroosmotic flow (EOF) in microcapillary tubes using laser induced fluorescence photobleaching anemometer (LIFPA) developed recently. This method can measure flow velocity with high temporal resolution. Theoretical estimation of the rise time of EOF is in the order of  $O(10^{-7})$  s. However, to our knowledge, this has never been experimentally validated. We leverage the high temporal resolution of the LIFPA to measure the rise time of EOF. For a microcapillary tube of 50 microm inner diameter and 50 mm long, with a neutral dye in methanol, the initial data shows that the rise time of EOF under a pulsed electric field, is in the order of  $O(10^{-4})$  s, much longer than theoretical prediction. Possible influence of different parameters such as tube diameter, length, electric field, buffer concentration, on the rise time of EOF has been studied as well.

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