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Continuous-flow Electrophoretic Separation of Particles with Dissimilar Charge-to-Mass Ratios via the Wall-induced Non-inertial Lift CORY THOMAS, ANDREW TODD, XINYU LU, XIANGCHUN XUAN, Clemson University — Traditional electrophoresis separates particles with dissimilar charge-to-mass ratios along the channel length direction in a batchwise mode. We present in this talk a continuous-flow electrophoretic separation of particles in the transverse direction of a straight microchannel. This separation stems from the particle property-dependent lateral migration due to the wall-induced non-inertial electrical lift force. It is demonstrated through both a binary and a ternary separation of polymer particles based on surface charge and size. A numerical model is also developed to understand this separation and to study the parametric effects.

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