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Electrophoretic Motion of a Cylindrical Particle through a 90° Corner[1] KENDRA SHARP, SCOTT DAVISON, Penn State University — Transient simulations of the trajectory of a cylindrical particle driven by electrophoresis through a 90° corner have been performed. The presence of the 90° corner acts to reduce the initial distribution of angles to the vertical of 90° to less than 30°, demonstrating the possibility of using a corner as a passive control element as part of a larger microfluidic system. A variety of system parameters, including zeta potential, channel width, particle aspect ratio, initial vertical position of particle and initial angle with respect to the horizontal, were tested to determine their impact on the particle motion. However, the reduction in angle is limited to the area near the corner posing a limitation on this means of control.

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