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A nanofluidic lateral Coulter counter YONG SUN, JUNHAN PAN, ROBERT RIEHN, North Carolina State University — Optical detection has been the mainstay of detection in many micro-and nanofluidic systems. However, the need for labeling and alignment of detectors or registration of images has slowed transition to application and increased cost. On the other hand, when traditional Coulter counters that detect along the axis of a fluidic channel are integrated with nanofluidics on a chip, leakage and limited resolution often present problems. For that reason, we are developing an electronic detection mechanism that is based on the impedance change of an electrode pair that is laterally integrated with a nanochannel. We will present detection of 50 nm polystyrene beads, and will discuss possible applications in the detection of biological molecules such as DNA.

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