

Abstract Submitted
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Non-Clogging Resistive Pulse Sensing with Electrohydrodynamic Cone-Jet Bridges CHUAN-HUA CHEN, YUEJUN ZHAO, DAVID BOBER, Duke University — A new paradigm of resistive pulse sensing (Coulter counting) is developed using a liquid bridge in lieu of a solid pore as the sensing aperture, where the flexible liquid aperture circumvents the clogging issue of conventional Coulter counters. The electrohydrodynamic bridge is formed between two opposing Taylor cones and stabilized by radial polarization stresses. Passage of a colloidal particle through the upstream conical apex triggers a current oscillation at the resonant frequency of the cone-jet bridge. The relative current change is indicative of the particle- to-jet diameter ratio.

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