

Abstract Submitted
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A Hybrid Integrated-Circuit/Microfluidic Device for Positioning, Porating and Fusing Individual Cells¹ CASPAR FLORYAN, DAVID ISSADORE, ROBERT WESTERVELT², Harvard Univ — Here we report a hybrid integrated-circuit/microfluidic device which can position, porate and fuse individual cells. Existing electroporation and fusion devices can only act on cells in bulk. Our device consists of a microarray of electrode pixels¹ and a grounded conducting plate. Cells were positioned with dielectrophoretic forces induced by the pixels and porated or fused with voltage pulses which caused a dielectric breakdown of the cell membrane. The device positioned cells with $10\mu\text{m}$ precision and porated or fused them with high yields. It is programmable and mass-parallelization on a single device enables bulk applications. ¹ T. Hunt, D. Issadore, R. Westervelt, *Lab on a Chip*, 2008, **8**, 81-87.

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