

Abstract Submitted
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Programmable, directed assembly of micron-scale components

CASPAR FLORYAN, ROBERT WESTERVELT¹, Harvard University — Self assembly is a nascent paradigm for assembling components in the micron to millimeter size range. Such assemblies are often performed by modifying the surface chemistries of the individual components or by creating flow fields directing them into position. We propose a method of directed assembly using dielectric contrast between the components and a surrounding fluid. A hybrid integrated-circuit / microfluidic device² will be used to trap and manipulate pieces into pre-defined patterns. The device contains an array of electrically-chargeable pixels on its surface, with a resolution of 10 μm .

¹PI

²Thomas Hunt, David Issadore, Robert Westervelt “Integrated Circuit/Microfluidic Chip to Programmably Trap and Move Cells and Droplets with Dielectrophoresis” *Lab on a Chip* 8, 81-87 (2008)

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