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Ferrofluid-based reconfigurable optofluidic switch[1] GIANNA VALENTINO, ERIC MONGEAU, YU GU[2], St Joseph's University — We present a low-cost, reconfigurable optofluidic switch exploiting both the optical and magnetic properties of a water-based ferrofluid. This switch is composed of an integrated waveguide orthogonally crossing a microfluidic channel containing high-index oil and a ferrofluid plug. The switch is turned "ON" or "OFF" by the movement of the ferrofluid plug in response to an external magnetic field. Each switch exhibits a high contrast ratio and millisecond response time. Parallel geometries for both mode and multi-mode waveguides are shown.

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