

ABSTRACT OF THE DISCLOSURE

MICROFLUIDIC DEVICE COMPRISING LATERAL/VERTICAL TRANSISTOR STRUCTURES AND PROCESS OF MAKING AND USING SAME

5 A microfluidic device includes a base (200), an outer surface of which forms one or more enclosures for containing a fluidic medium. The base can include an array of individually controllable transistor structures (206) each of which can comprise both a lateral transistor (252) and a vertical transistor (254). The transistor structures can be light activated, and the lateral and vertical transistors can thus be photo transistors. Each transistor structure can be activated to create a
10 temporary electrical connection from a region of the outer surface of the base (and thus fluidic medium in the enclosure) to a common electrical conductor (162). The temporary electrical connection can induce a localized electrokinetic force generally at the region, which can be sufficiently strong to move a nearby micro-object in the enclosure.

15 [Figure 3A]