“An Integrated Microfluidic System for Reaction, High-Sensitivity Detection, and Sorting of Fluorescent Cells and Particles”

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One goal of interest in the field of analytical chemistry is to design and create liquid handling devices; while this is important, the main concern is coming up with very small devices(on the microscale) that can be used in analyzing fluid samples for example, detecting, sequencing and sizing DNA. A microfluidic system is one of such devices and seeks to combine multiple reaction and separation units with the analysis of a whole sample on a single chip. The microchips have built-in devices which are very sensitive to fluorescent and upon the bases of their detection of fluorescent particles, the particles of interest are sorted electroosmotically and directed into other channels by means of electrokinetics. These functions enable a very fast and efficient way of analyzing samples. Particles contained in the liquid are illuminated by a Hg arc lamp and can be visualized using a CCD camera. The microchannels in the chip are made from a silicone mold comprising the channel geometry and then coated with Teflon.

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