# Microtechnology for the Acquisition of Chemical and Biochemical Information

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Interest in microfabricated fluidic channel structures (microchips) has grown tremendously over the past decade due to the large number of powerful demonstrations that have appeared in the literature. The diversity of chemical and biochemical measurement techniques implemented on microchips is large including various electrophoretic and chromatographic separations, chemical and enzymatic reactions, noncovalent recognition interactions, sample concentration enhancement, and cellular manipulations. In addition the types of samples addressed by microchips has been broad in scope, e.g., small ions and molecules, single and double stranded DNA, amino acids, peptides, and proteins. These devices have low cost and small footprints while consuming miniscule quantities of reagents and producing rapid results. Moreover, the manufacturing strategy used to make these devices, i.e., photolithography, allows highly parallel systems to be fabricated at low incremental cost. All of these features suggest the possibility to economically perform chemical experimentation at a massive scale on a bench top. There has also been progress in miniaturizing gas phase chemical measurement tools such as mass spectrometry. Some of our latest results in these areas of research will be presented.

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