



Novel Method for the Control of Flow and Materials on Micro-devices

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Invention Description

Capillary Zone Electrophoresis (CZE) is a separation technique used for various analytical applications. It has been integrated onto glass substrates, microchips and in parallel with total chemical analysis systems, in order to provide efficient and informative results to its end user. Although CZE has developed into a highly regarded useful technique, much room for improvement still exists.

Researchers at Arizona State University have developed a device entailing a series of CZE channels on a microchip that allows for precise control of sample movement through the channels, as well as, a means to concentrate the sample prior to being subjected to the capillary. Both notable improvements will increase efficiency and detection sensitivity for analyzing, manipulating, testing or probing any fluid sample.

Potential Applications

- **Clinical diagnostics**-Whole cell lysates, Blood serum analysis
- **Forensics**
- **Quality Control**- Pharmaceutical Industry, Food Industry, Materials Manufacturing

Benefits and Advantages

Unlike current methods of small volume fluid analysis, this method minimizes dispersion to the diffusion only limit while allowing specific materials to be selectively moved about the device.

- **Process enables independent control of charged species movement versus bulk buffer flow.**
- **Full range dynamic control of electro-osmosis, and longitudinal voltage field restrictions for each channel and accurate flow monitoring for micro-devices.**