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- [54] **METHOD FOR SAMPLE INJECTION IN MICROCHANNEL DEVICE**
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[57] **ABSTRACT**

A method and device are provided for transporting a liquid sample into a third microchannel from an intersection of at least a first, a second, and a fourth microchannel, by stages. In a first stage, liquid sample is moved in and from the fourth microchannel through the intersection and into the second microchannel and concurrently carrier liquid is moved in and from the first and third microchannels through the intersection and into the second microchannel. Thereafter in a second stage, at least part of the contents of the intersection is moved into the third channel and concurrently a part of the contents of the second and fourth microchannels is moved through the intersection and into the third microchannel. Thereafter in a third stage, carrier liquid is moved from the first microchannel simultaneously through the intersection and into the second, third, and fourth microchannels. In some embodiments the liquid sample and the carrier liquid are moved electrokinetically, that is, by application of an electric field to segments of the microchannels.

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18 Claims, 4 Drawing Sheets