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**Xinli Wang\***, 800 University Way, Spartanburg, SC 29303, and **German Drazer**. *Transport of Brownian particles in a curved channel confined by a periodic potential.*

This work is motivated by novel separation strategies in microfluidic devices by taking advantage of the unprecedented control on geometry and chemistry of the stationary phase at scales that are comparable to the size of the transported species. Asymptotic analysis is applied to analytically calculate the average velocity in the case of the small ratio between the channel width and the length of one period. The result shows that the normalized average velocity does not depend on the Peclet number and is inversely proportional to the length of the channel length. (Received September 25, 2012)