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**Dispersion control in deformable microchannels** GARAM LEE, ABIGAIL TAYLOR, Brown University, ALAN LUNER, JEREMY MARZUOLA, University of North Carolina at Chapel Hill, DANIEL HARRIS, Brown University — In fully-developed pressure-driven flow, the spreading of a dissolved solute is enhanced in the flow direction due to transverse velocity variations in a phenomenon now commonly referred to as Taylor dispersion. It is well understood that the characteristics of the dispersion are sensitive to the channel's cross-sectional geometry. Here we demonstrate a method for manipulation of dispersion properties in a single microchannel via controlled deformation of one of the channel's walls. Using a rapid-prototyped multi-layer microchip, the upper channel wall is deformed by an external pressure source allowing us to characterize the dependence of the dispersion on the deflection of the channel wall and overall channel aspect ratio. Our experimental measurements are compared directly with theoretical predictions.

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