A Planar Microfluidic Mixer Based on Logarithmic Spirals

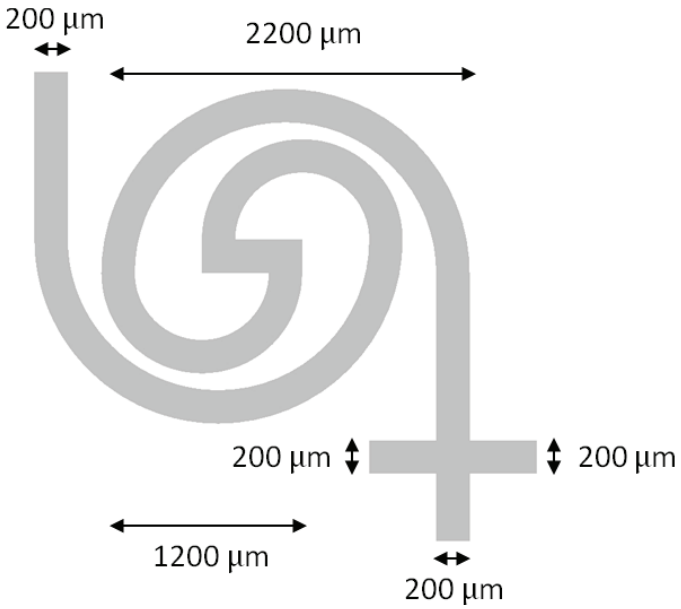

Figure 1. This is the scaled Archimedes geometry that was simulated and discussed in Section 4.1. The results of this simulation are shown in figure 4. The geometry consists of three perpendicular 200 μm wide inlets. Channel depth is kept constant at 50 μm, as is channel width (200 μm), throughout the geometry. This Archimedes Spiral consists of two pieces with the outer curve diameter specified as 2200 μm and two pieces with the outer curve diameter specified as 1200 μm. There is a straight channel that allows the radius of curvature to change directions from counter-clockwise to clockwise. This Archimdedes spiral mixer has approximately the same pathlength as the SeLMA micromixer.

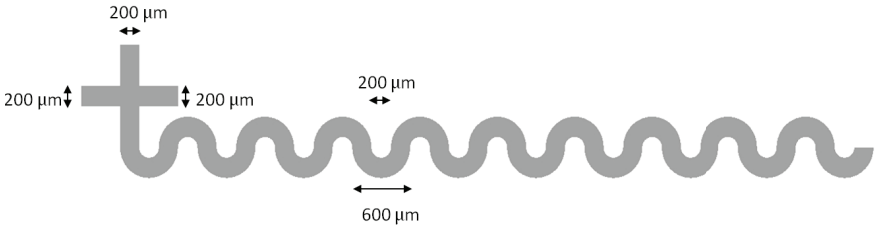

Figure 2. This is the scaled Meandering-S geometry that was simulated and discussed in Section 4.1. The results of this simulation are shown in figure 4. The geometry consists of three perpendicular 200 μm wide inlets. Channel depth is kept constant at 50 μm throughout the geometry. This Meandering-S consists of joined 200 μm wide semi-circles. The outer and inner arcs of each semi-circle have diameters of 600 and 200, μm, respectively. This Meandering-S mixer has approximately the same pathlength as the SeLMA micromixer.

Figure 3. This is the scaled T-Channel geometry that was simulated and discussed in Section 4.1. The results of this simulation are shown in figure 4. The geometry consists of three perpendicular 200 μm wide inlets. Channel depth is kept constant at 50 μm, as is channel width (200 μm), throughout the geometry. This T-Channel mixer has approximately the same pathlength as the SeLMA micromixer.