4. A splitter of a substantially laminar microfluidic stream comprising:

a splitting channel coupled to at least two inlet ports and at least one outlet port in which said substantially laminar microfluidic stream has an axis of flow; and

a plurality of substantially straight unconnected wells disposed in said splitting channel, said wells being oriented substantially across the width of said channel and diagonal to said axis of flow, said wells being greater in depth than in width, said wells having well surfaces that effect electroosmotic mobility such that electroosmotic mobility at said well surfaces is higher than electroosmotic mobility at other surfaces of said splitting channel.

5. The splitter of claim 4 wherein alternating wells are configured perpendicular to each other.

6. The splitter of claim 4 wherein said wells are configured parallel to each other.

7. The splitter of claim 4 wherein said microfluidic streams are propelled by pressure.

8. The splitter of claim 4 wherein said microfluidic streams are propelled by electroosmosis.

9. The splitter of claim 4 wherein said microfluidic streams are propelled by electrokinetics.

10. A mixer of laminar microfluidic streams propelled by electrokinetic flow comprising:

a first inlet channel;

a second inlet channel;

a mixing channel starting at the confluence of said first inlet channel and said second inlet channel; and

a plurality of substantially straight unconnected wells disposed in said mixing channel, said wells being obliquely oriented substantially across the width of said mixing channel, said wells having well surfaces that effect electroosmotic mobility such that electroosmotic mobility at said well surfaces is higher than electroosmotic mobility at other surfaces of said mixing channel.

11. A splitter of a substantially laminar microfluidic stream comprising:

a splitting channel coupled to at least two inlet ports and at least one outlet port in which said substantially laminar microfluidic stream has an axis of flow; and

a plurality of substantially straight unconnected wells disposed in said splitting channel, said wells being oriented substantially across the width of said channel and diagonal to said axis of flow, said wells having well surfaces that effect electroosmotic mobility such that electroosmotic mobility at said well surfaces is higher than electroosmotic mobility at other surfaces of said splitting channel.

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