Claims

1. A distributor (100) for distributing a fluid flow from a smaller fluid plug to a more broad fluid plug, said distributor (100) comprising a fluid input (110) and a plurality of fluid outputs (120), and a channel structure (130) in between the fluid input (110) and the plurality of fluid outputs (120), the channel structure (130) comprising alternatingly :

   bifurcating channel substructures (132) and common channel substructures (134) wherein said substructures (132, 134) are arranged so that fluid exiting different channels from a bifurcating channel substructure (132) mixes in a subsequent common channel substructure (134), and

   whereby fluid channels of the bifurcating channel substructure (132) are arranged such that these do not contact the subsequent common channel substructure (134) at end-points thereof, wherein the common channel substructure (134) is arranged such that its length axis is substantially perpendicular to a net forward flow of the structure.

2. The distributor (100) according to any of the previous claims, wherein at least one common channel substructure (134) comprises a common channel filled with a plurality of pillar elements arranged spaced from each other.

3. The distributor (100) according to claim 3, wherein the plurality of pillar elements in at least one common channel are pillar elements aligned in an even number of rows wherein the radial positions of the centerlines of the different inter-pillar element spaces at every n^{th} row match the outlets of the preceding bifurcation channels, while the radial positions of the centerlines of the different inter-pillar element spaces at every $n\text{-}1^{th}$ row match the centerlines of the pillars in the following row.

4. The distributor (100) according to any of claims 2 to 3, wherein each of the common channel substructures (132) is filled with a plurality of pillar elements arranged spaced from each other.

5. The distributor (100) according to claim 4, wherein for each common channel, the pillar elements are aligned in an even number n of rows wherein the radial

positions of the centerlines of the different inter-pillar element spaces at every n^{th} row match the outlets of the preceding bifurcation channels, while the radial positions of the centerlines of the different inter-pillar element spaces at every n-1th row match the centerlines of the pillars in the following row.

6. The distributor (100) according to claim 5, wherein the number of rows of pillar elements in a common channel substructure (134) closer to the inlet (110) is higher than the number of rows of pillar elements in a common channel substructure (134) nearer to the outlet (120).
7. The distributor (100) according to any of claims 2 to 6, wherein the pillar structures have a rectangular, diamond-like or ellipsoidal shape.
8. The distributor (100) according to claim 1, wherein no pillar structures are present in the common channel of the common channel substructures (134).
9. The distributor (100) according to any of the preceding claims, wherein the number of fluid outputs is (2^m) with m a natural number.
10. A microfluidic structure comprising a distributor (100) according to any of claims 1 to 9.
11. A microfluidic structure according to claim 10, the microfluidic structure being a separation structure for a chromatographic system.
12. A chromatographic system comprising a microfluidic structure according to any of claims 10 to 11.
13. A chemical reactor comprising a flow distributor (100) according to any of claims 1 to 9 or a microfluidic structure according to any of claims 10 to 11.