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U.S. Patent No. 11,969,532 entitled “Microstructured Discrimination Device” issued April 30, 2024 to BVW Holding AG of Cham, China. Invented by Lukas Bluecher of Eurasberg, Germany and Michael Milbocker of Holliston, Massachusetts. Abstract: The present invention discloses a microstructured discrimination device for separating hydrophobic-hydrophilic fluidic composites comprising particulate and/or fluids in a fluid flow. The discrimination is the result of surface energy gradients obtained by physically varying a textured surface and/or by varying surface chemical properties, both of which are spatially graded. Such surfaces discriminate and spatially separate particulate and/or fluids without external energy input. The device of the present invention comprises a platform having bifurcating microchannels arranged radially. The luminal surfaces of the microchannels may have a surface energy gradient created by varying the periodicity of hierarchically arranged microstructures along a dimension. The surface energy gradient is varied in two regions. In one pre-bifurcation region the surface energy gradient generates a fluid flow. In the other post-bifurcation region, there is a difference in surface energy proximal to the bifurcation such that different flow fractions are divided into separate channels in response to different surface energy gradients in each of the post-bifurcation channels. Accordingly, fluids of different hydrophobicity and/or particulate of different hydrophobicity are driven into separate channels by a global minimization of the fluid system energy.