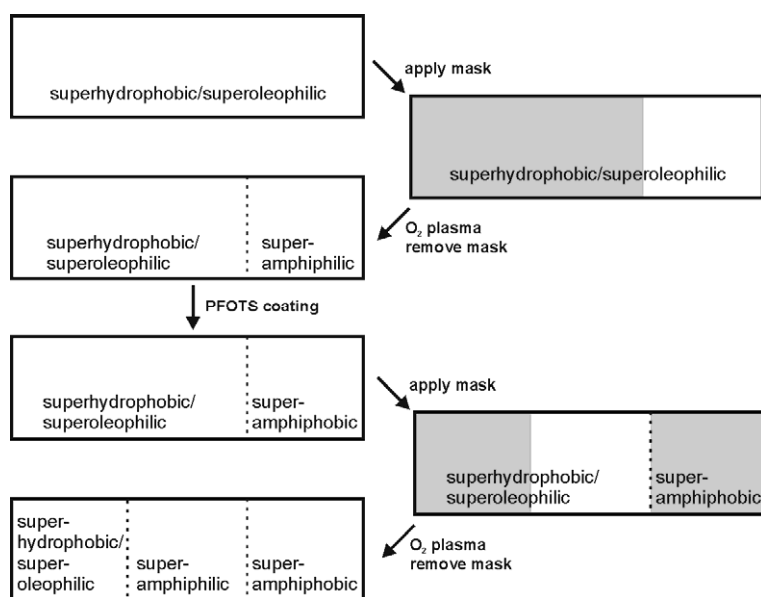


## Experimental Section

Preparation of the initial superhydrophobic silicone nanofilament coating is described elsewhere in detail.<sup>1</sup> Plasma activation was performed in a laboratory plasma machine "Femto" from Diener electronic (Nagold, Germany) with oxygen as process gas and 100 W generator power. Functionalization of the activated substrates was achieved by placing the substrates in a 1mM solution of Octadecyltrichlorosilane or 1H,1H,2H,2H-perfluorooctyltrichlorosilane (both ABCR, Germany) in anhydrous toluene (ACROS) overnight. A water content of <10ppm was found to be essential to achieve good coating results. Coating was therefore performed in a drybox (custom built) under nitrogen.

To create patterned surfaces, areas on the substrate were shielded from the oxygen plasma by a glass slide. Details on the coating sequence to fabricate the trifunctional surface are illustrated in Scheme 1. To create fine structures like hydrophilic canals, it was necessary to prevent the oxygen plasma from diffusing underneath the rim of the glass slides. A thin layer of vacuum grease was applied to the underside of the glass slides to facilitate a good contact with the surface. After plasma treatment, the vacuum grease was removed by short (<2min) ultrasonication in acetone.



**Scheme 1.** Fabrication process for the patterned trifunctional surface.

**Table 1.** XPS data of functionalized silicone nanofilament coatings

	Silicone nanofilaments	OTS modified silicone nanofilaments	PFOTS modified silicone nanofilaments
O [At%]	41	40	30
C [At%]	29	38	18
Si [At%]	30	22	16
F [At%]	-	-	36

1 G. R. J. Artus, S. Jung, J. Zimmermann, H.-P. Gautschi, K. Marquardt, S. Seeger, *Adv. Mater.* 2006, **18**, 2758.