

Surface topographic features to control biofouling

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Marine biofouling is the undesirable accumulation of microorganisms, plants and animals on artificial surfaces immersed in the sea [1]. The increased hydrodynamic drag caused by fouling leads to higher operating costs of vessels. Studying the interaction between marine organisms and surfaces enhances the development of environmentally compatible approaches to control fouling [2]. Surface microtopography has been found to influence the settlement of cells and larvae [3]. We have studied the influence of surface topographic features on the biofouling process. Honeycomb gradient structures, inspired by the pattern found on the skin of the pilot whale [4], were obtained by a hot embossing process, and the effect on the density of spores of the green alga *Ulva* that attached in laboratory assays was quantified. Spore settlement density was higher on the microstructured gradients than the smooth background. The highest density of spores was found when the size of the microstructures was similar to or larger than the size of a spore. With decreasing size of the honeycombs, spore settlement decreased to a level similar to that on the smooth background. In line with the results from the Brennan group [5], spore settlement correlated with Wenzel roughness.

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