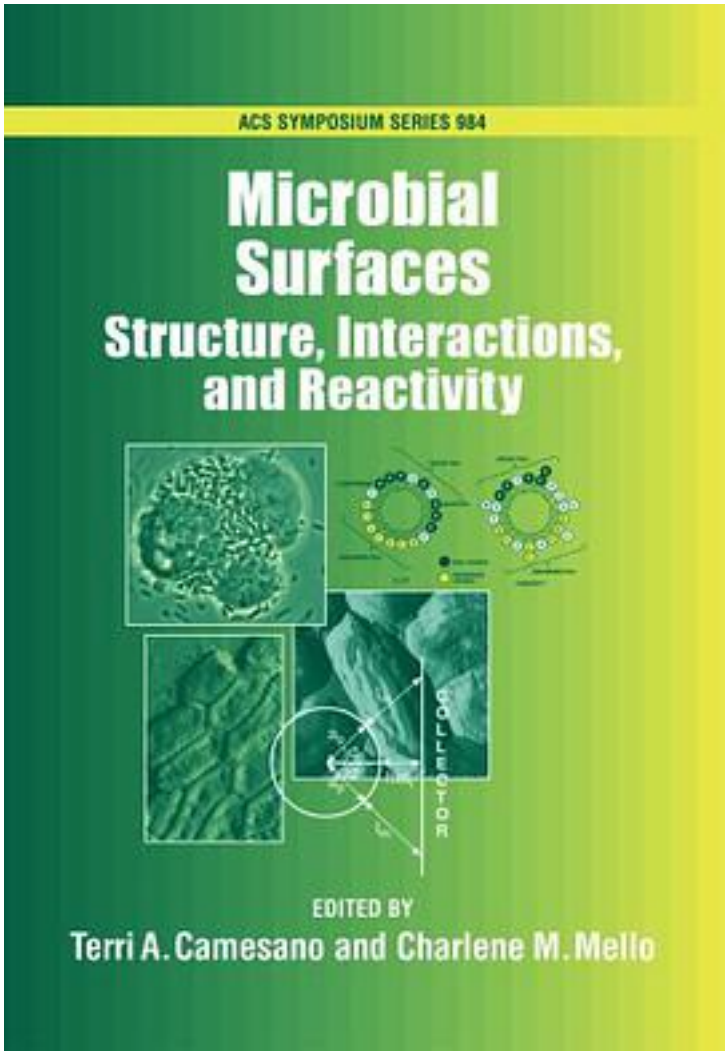
Microbial Surfaces



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The interactions of microbes with surfaces are important to many natural and engineered processes, affecting a wide range of applications from decontamination of surfaces or drinking water, prevention of microbial colonization of biomaterials, and bacterial processes in the environment. Therefore, there is great interest in understanding the fundamental behavior of microbes at surfaces. Topics are included that address interactions of cells with a number of surfaces for antifouling and microbial cell-based sensor applications; mechanistic studies of antimicrobial peptides and quorum sensing; exploration of experimental and theoretical models of a cell surface; cell surface display of peptides and enzymes as biofabrication techniques; the fate and transport of bacteria in the natural environment, as well as new experimental tools or modeling techniques to study interactions at the microbial surface. While most of the papers are geared towards a specific application, they all contain fundamental information regarding bacterial behavior at interfaces that allows their contents to translate to other problems, as well.For example, many parallels are noted between the way bacteria interact with proteins-coated polymers on a catheter and bacterial-peptide interactions in a cellular detection assay. An overlying theme of all the manuscripts is that they represent studies of microbial interfaces using the most sophisticated experimental and modeling tools available, and many feature interdisciplinary approaches to tackling the given problems.

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