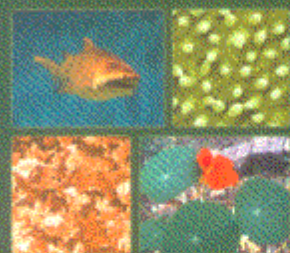


## Functional Properties of Bio-Inspired Surfaces

Characterization and Technological Applications



Many good books have been written recently on this new field called biomimetics or bionics, but few exploring simultaneously the characterization and technological processes to produce man-made surfaces with similar properties as the biological ones. Bio-inspired surface structures offer significant commercial potential for the creation of anti-reflective, self-cleaning and drag reducing surfaces, as well as new types of adhesive systems. This review volume explores how the current knowledge of the biological structures occurring on the surface of moth eyes, leaves, sharkskin, and the feet of reptiles can be transferred to functional technological materials. It analyses how such surfaces can be described and characterized using microscopic techniques and thus reproduced. It also encompasses the important areas of current surface replication techniques and the associated acquisition of good master structures.

The book is divided in three sections: an introduction of the skin functions and four functional properties of biological surfaces; physical, chemical and microscopy techniques for describing and characterizing the surfaces; and replication techniques for modifying non-natural surfaces.

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