

PHYSICOCHEMICAL CHARACTERIZATION OF NANOSTRUCTURED MATERIAL FORMED BY ASSEMBLING POLYMERS ON GOLD

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The need to protect metal surfaces in an industrial way against corrosion, incrustations of biological material, etc., has led to the beginning of lines of research that pursue the modification of surfaces with polymers, converting the growth of brushed polymers into substrates of different nature and form, in a subject of great interest due to the important applications such as anti-corrosive coatings, masks for engravings, lithographs, anti-incrustations, treatments against ice and on photocatalytic surfaces [1].

This PhD project is part of the study of functional interfaces with biocompatible properties. The aim of this work is the characterization of polymeric coatings formed on metals, in particular on gold, modified by self-assembled monolayers (SAMs) of functionalized alkanethiols, with different size, shape and surface characteristics. This is done using a strategy known as *grafting from*, which is based on a bottom-up approach. The polymer chains are grown through a process of polymerization initiated on the surface, from a SAM modified substrate in which the appropriate functional groups have been introduced. In this way, polymer assemblies anchored on the surface can be prepared with high packing density. The obtention of these hybrid materials, both in nanometric size as in macroscopic substrates and their characterization, constitutes the initial and essential step for their subsequent use in applications in both biological and technological systems.

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