

Functional nanocoatings as compatible interphases in hybrid materials

Vladimir Cech

Brno University of Technology, Czech Republic

Plasma-enhanced chemical vapor deposition (PECVD) allows the preparation of very specific materials in the form of a thin film. These materials are increasingly used as abrasion resistant, barrier, biocompatible, dielectric, optical or adhesive coatings and also as functional films in chemical sensors, separation membranes, and hybrid materials such as polymer composites. In addition to organic precursors used for the preparation of diamond-like carbons (DLC), organosilicones are often used as precursors. Recent studies have shown that the physical and chemical properties of thin films prepared from organosilicon precursors can be governed

by deposition conditions within relatively wide ranges. Polymer-like coatings of the so-called plasma polymers can be prepared at relatively low powers (< 10 W) delivered to the low-temperature plasma. On the example of selected plasma polymers, we will demonstrate the correlations between the physical (optical, mechanical, electronic) and chemical properties of these materials and their use for the deposition of multilayers and gradient nanostructures with application in polymer composites.

e: cech@fch.vut.cz

 Notes: