

# **Nanocomposites and nanomaterials; Nanostructured surfaces**

## **Ellipsometry of nanostructures on a surface.**

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Ellipsometric investigations of nanostructures on a surface have peculiarities created by two-dimensional character of such a structures. As the result, interactions along and across the surface are different producing effective optical anisotropy of such a structures. The situation is even more complicated because of the interaction of nanoobjects with the surface. These reasons do not allow to apply Lorentz sphere formalism for the fields averaging in heterogeneous nanostructure producing deviation of optical properties of such a structures from results given by standard 3D models of effective-medium approximation. These problems will be discussed and examples of ellipsometric investigations of both random and ordered nanostructures on surfaces will be presented. It is shown that polarization properties of light can give macroscopic information about microscopic interparticle interactions as well as ellipsometry allows to monitor behavior of modes localized on the layer of nanostructures and to register interactions of such a modes.