Chemical surface reactions as an object for physical study

K.N. Eltsov

A.M. Prokhorov General Physics Institute RAS, Moscow.

eltsov@kapella.gpi.ru

In the lecture, different types of chemical surface reactions will be described. First, the interactions of active gases, like halogens of oxygen, with metal surfaces are the most studied processes. I will demonstrate how it is possible to follow reaction development along the active gas coverage from the molecule dissociation and atom diffusion to surface reconstruction and local (surface) chemical compound formation. Secondly, elementary catalytic process like graphene growth on Ni(111) surface will be analyzed. All the experimental examples will be presented on atomic scale with use of Scanning Probe Microscopy and support with Density Functional Theory calculations.