XPS FOR *IN SITU* STUDY OF THE MECHANISMS OF HETEROGENEOUS CATALYTIC REACTIONS

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The possibility to use X-ray photoelectron spectroscopy (XPS) for *in situ* studies of the mechanisms of heterogeneous catalytic reactions over the pressure range from ultrahigh vacuum to 100 mbar is considered. The application of this method to investigation of CO adsorption and hydrogenation as well as kinetics and mechanism of methanol transformation on the palladium surface at pressures of 10^{-6} mbar to 0.1 mbar is reported.

Keywords: heterogeneous catalysis, *in situ* XPS, methanol dehydrogenation, methanol oxidation, CO adsorption, CO hydrogenation.