**Doping of Carbon Materials for Stabilization of Active Sites of Metal and $MoS_2$ Catalysts**

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A catalyst is often comprised of a catalyst's support and an active component taken in a small concentration. The support may influence not only the dispersion of the active component, but may drastically change its properties. Carbon materials are used as high surface area supports. Their composition can be changed by doping with foreign elements like nitrogen or oxygen and further influence the nature and properties of surface sites of the active component. In the presentation, we will consider the effects of N-doping of a graphene-like carbon and carbon nanofibers as well as the effects of O-doping of microspheres and microfibers on the activity of supported noble metals (Pt, Pd, Ru and Au) in hydrogen production from formic acid decomposition and in other catalytic reactions. The most interesting result is that the N-doping of the carbon supports may provide a significant increase of the activity of supported metals (by up to 1 order of magnitude). This was attributed to the formation of new active sites – electron-deficient single metal atoms stabilized by a pair of pyridinic type nitrogen atoms located on open edges of graphene fragments. Additionally, we will report the results of application of a $MoS_2$ catalyst supported on graphene flakes in the same reaction. We will show that thin crystalline $MoS_2$ particles of 20-30 nm size are inert in the reaction, while $MoS_2$ clusters of about 1 nm size are responsible for catalysis as they contain a lot of edge Mo atoms as active sites.