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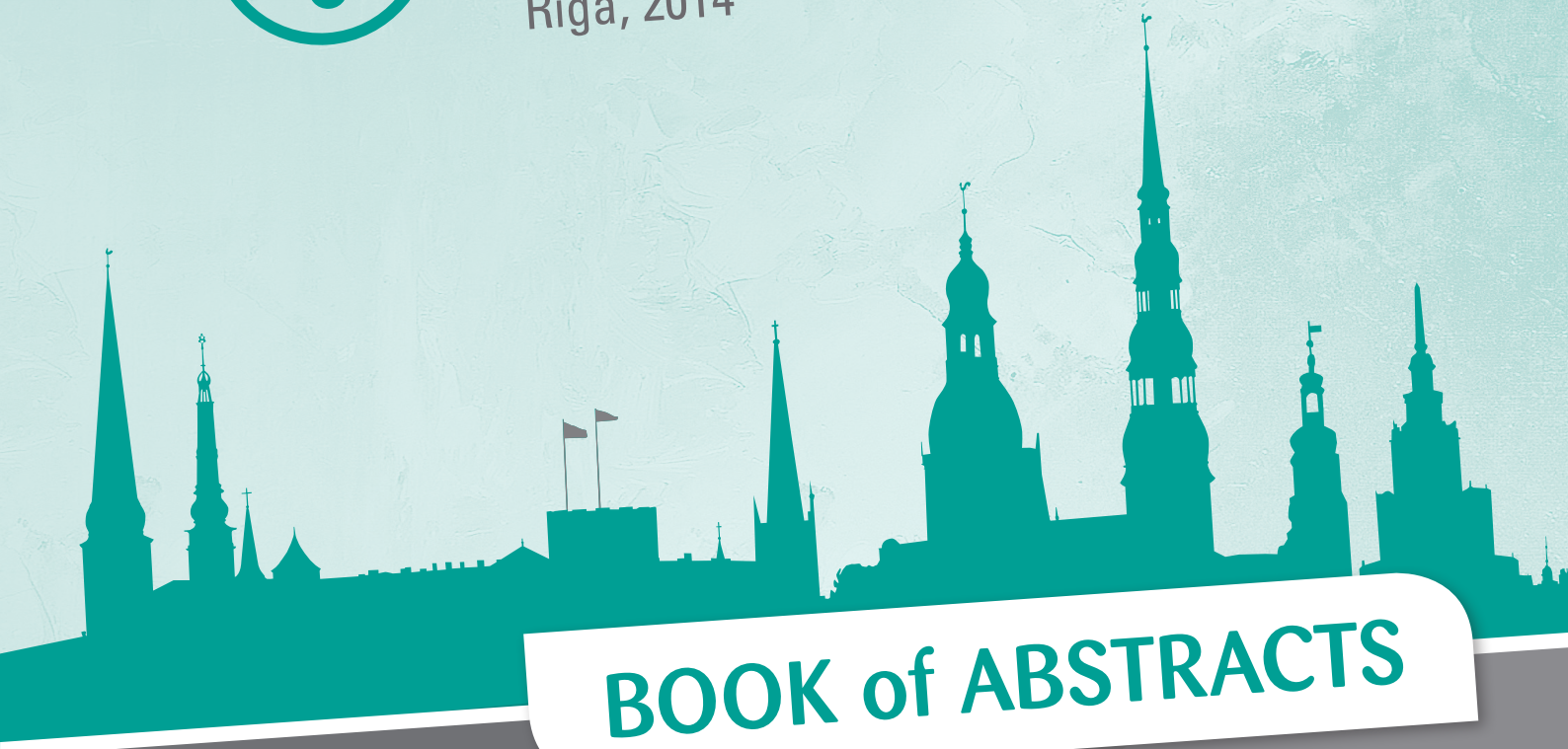

BOOK of ABSTRACTS

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F-37

Graphene Nanosheets Grown on Ni Particles

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Ultrathin graphite sheets or/and graphene nanosheets were obtained on the surface of particles of Ni powder. The new method based on well known dissolution and precipitation mechanism of graphene formation on catalyst surface is reported. Fig.1a presents the Ni powder particles with as prepared graphene sheets. Graphene nanosheets can be seen on the surface of Ni beads as grey coating on light beads. Freestanding graphene sheets were obtained after dissolution of Ni. Upon dissolution of the Ni powder is possible disintegration of the coating into the individual graphene sheets or the graphene sheets are formed the carbon body in the form of the original ingot sintered powder of Ni. In the first case graphene samples were obtained by vacuum filtration, in the second after drying of carbon body. SEM images (Fig. 1b) revealed that surface of the bodies consist of randomly aggregated, crumpled sheets closely associated with each other. The thickness of these sheets was determined with XRD by (002) diffraction peak broadening (Fig. 3). The quality of the sheets was estimated by Raman scattering spectra. Obtained by us layers can be defined as a graphene nanosheets. Number of graphene monolayers in these nanosheets controllably varied from 7 to 40.

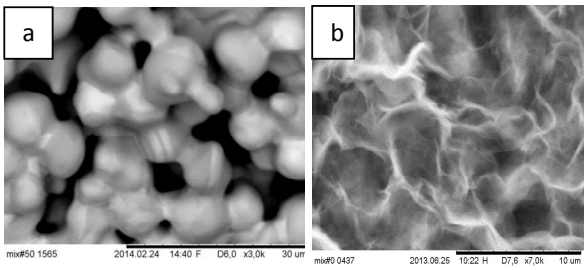

Fig. 1. SEM images of the particles of Ni powder after annealing with appropriate conditions (a). Surface of the carbon sample after Ni dissolution.

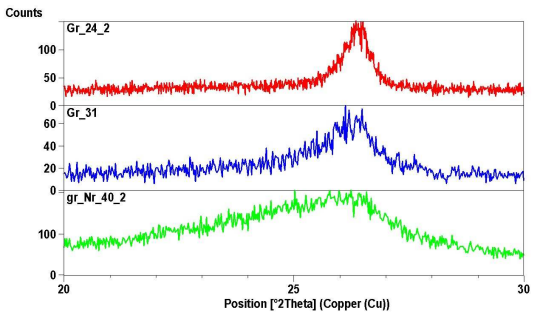

Fig. 3. XRD patterns of the graphene nanosheets samples, with different (002) diffraction peak broadening.