

SUMMARY OF DOCTORAL THESIS

Title: Surface functionalization of multiwall carbon nanotubes with metals and application of the obtained composites in reaction of conversion of carbon monoxide with water vapor

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This work aimed to develop a novel synthesis method of multi-walled carbon nanotubes from synthesis gas which controls the yield of the product, the structure, and outer diameter depending on the reaction parameters such as temperature, time, reactant flow rate and catalyst active phase content. We functionalized a surface of carbon nanotubes with metals to obtain composites with potential application in fuel cells or industrial catalytic processes. We targeted to determine the catalytic activity of the produced composites in the reaction forming hydrogen as a clean fuel and energy carrier. We presented innovative functionalization of carbon nanotubes with metals using the obtained composites in the reaction of carbon (II) oxide conversion with water vapor represents a significant contribution to the chemistry of nanotubes and their catalytic applications. The results were published in a series of scientific publications.