



OPINION OF THE DISSERTATION SUPERVISOR

THESIS TITLE: Selected Sorption Properties of Nanofibers Assembly

AUTHOR: Yan Wang, M. Eng.

I am writing this letter to recommend Ms. Yan Wang for her final defence. Ms. Yan Wang has been studying and working with me for more than 4 years. She is optimistic, intelligent, outstanding in communication, team work and research.


She specializes in sorption properties of nanofibers assembly, has completed all of the courses, and state exam successfully, as first author published 2 papers in journals with impact factor (another 2 papers under review), 14 papers in international conferences (2 more papers accepted), and 1 chapters in books. Besides, she is active in promoting international cooperation among universities.

The main specific goal of PhD candidate was to study the adsorption properties of polyamide 6 nanofibers assembly.

In this thesis, the factors such as temperature, solution pH value, solution concentration, dosage of sorbent, and fiber scale of sorbent were studied. Dye sorption was fitted with isotherms and kinetic models. Thermodynamic parameters calculation confirmed a feasibility, spontaneous, and entropy-driven process in the temperature range 30-50°C. The positive value of standard enthalpy change and standard entropy change revealed an endothermic sorption process and it increased the randomness and degree of freedom. Dynamic sorption process result showed that nanofibers have superior dye removal properties than conventional fibers. The factors such as areal density, influent solution concentration, and fibers quantity were considered for the dye removal rate of polyamide 6 nanofibers. And it showed a positive relation with fibers mat specific surface area and quantity. The result of steam treatment showed that dye removal capacity could be improved as the temperature over 120°C. And TiO₂ nanoparticles photocatalysis was proved to be one method for improving the dynamic sorption capacity of acid dye on polyamide 6 nanofibers.

I strongly recommend her for the final defence since she has fulfilled all the requirements and excellent work she has done.

4.10.2016


prof. Ing. Jakub Wiener, Ph.D.

Supervisor