Supervisor's reference

Candidate: Ing. Milan Navrátil

The main aim of Ing. Milan Navrátil's PhD thesis was the application of selected physical methods for experimental identification of a real system. The real system was represented by water solution of polypeptides, obtained by enzymatic hydrolysis of chrome shavings. Another no less important task was to work out a mathematical model of hydrolysate cross linking by aldehydes. The results are represented by kinetic curves of the incoming, outgoing and intermediate products of the cross linking reaction. The obtained mathematical model then helped to develop the state values dynamical model. Due to considerable non-linearity of the model, Ing. Milan Navrátil used the Taylor expansion to linearize the vector differential equations. The linearized model was then applied to derive the transfer matrix, which is a necessary precondition for the proposal of the chemical reaction control algorithm.

I would also like to mention the extensive experimental measurements that represent a no less important part of the thesis.

I am pleased to state that the candidate has acquired the necessary theoretical and practical experience and skills, to which also contributed candidate's very successful stay in the British Leather Technology Centre in Northampton, England.

Considering the accomplished aims of the thesis, presentation of the results at international conferences and upcoming publications, I recommend Ing. Milan Navrátil's PhD thesis for defense.

In Zlín, December 12, 2007

prof. Ing. Karel Kolomazník, DrSc.