TECHNICKÁ UNIVERZITA V LIBERCI
Fakulta mechatroniky, informatiky
a mezioborových studií

DIPLOMA THESIS EVALUATION
OPPONENT EVALUATION

Authorname: Suvorov Dmitry Alekseyevich
Opponent: Prof. Dr. Vadim Zhmud, Head of Department of Automation NSTU (Russia)
Thesis title: Feedback control on derivatives for nonlinear objects

A. Abstract quality, keywords matching	Excellent (1)
B. Research scope and processing	Excellent minus (1-)
C. Level of theoretical part	Excellent (1)
D. Appropriateness of the methods	Excellent (1)
E. Results elaboration and discussion	Excellent minus (1-)
F. Students own contribution	Excellent (1)
G. The conclusion statement	Excellent (1)
H. Fulfillment of Thesis tasks (goals)	Fulfiled
I. Structure, correctness and fulness of references	Excellent (1)
J. Typographical and language level	Excellent (1)
K. Formal quality (text structure, chapters order, clarity of illustrations)	Excellent (1)

Comments, remarks

Localization method was used in the synthesis of controller for complex non-linear process. This method was developed by the scientific school at the Department of Automation, Novosibirsk State Technical University (Russia).

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Overall assessment:

Thesis task is topicality because the author considers the problem of controller design for a heat exchanger which is a complex technical object of high order.
The solution of the problem required a good knowledge of control theory and work with the scientific literature. Theoretical material was processed at a sufficiently high level.
The benefit of this Thesis is to design the double-loop control system because the object is a series connection of two components with different rates dynamics. Separate controllers for each control loop can be calculated independently of each other; taking into account the results of the process separation method.
The simulation results in MatLab confirm the efficiency of the proposed approach to the synthesis of the control system. This result is important for practice when you want to ensure the high quality of the processes in the heat exchanger.

Questions for the defense:

1. What are the advantages of using the higher derivative in the control law?
2. Explain how your controller will work if there is noise?

Overall classification:

Work meets the Master degree requirements and therefore I recommend it for defense

I suggest to classify this work by grade Excellent (1)

In Novosibirsk, Russia

date May 23, 2014

By signing I certify that I am not in any personal relationship with the author of the thesis

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Opponent signature