



DIPLOMA THESIS EVALUATION OPPONENT EVALUATION

Author name: Bc. Igor Prikhodko

Thesis title: Innovation of the aspherical lenses polishing machine

Opponent: David Tomka

Opponent workplace: Ústav fyziky plazmatu AVČR v.v.i.

A. Abstract quality, keywords matching	Excellent minus (1-)
B. Research scope and processing	Very good (2)
C. Level of theoretical part	Excellent minus (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 minus (1-)
H. Fulfillment of Thesis tasks (goals)	Fulfilled
I. Structure, correctness and fulness of references	Excellent (1)
J. Typographical and language level	Good (3)
K. Formal quality (text structure, chapters order, clarity of illustrations)	Very good (2)

Comments, remarks

1. Information on polishing tool paths and so called "dwell-time control" is missing in the research part. I believe that it would have led into slightly different focus of diploma thesis.
2. Typographical and language levels are compromised and show considerable inconsistency. Some parts of the thesis are well written, but there are cases of hardly understandable sentences.
3. Theoretical part of diploma thesis is abundant of unnecessary technical details.

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Overall assessment:

Topic of the diploma thesis is very actual and important for modern optical industry. Full-fledged CNC polishing machines are useful for highly aspheric surfaces, but they are expensive and produced surfaces have lower optical quality compared to traditional technology. Hybrid machines, such as described in the thesis, are an interesting solution. Typical applications are optical elements for high power lasers and astronomy.

Results of the diploma thesis - design of control structures, control programs and motion simulator are very valuable and I hope that work on the hybrid polishing machine will continue in the future.

Questions for the defense:

1. What is the real servo/IPO time for this configuration? Is it 0.5 ms mentioned in table 4.2?
2. How would you calculate the statistical distribution of the tool position $C(x,y)$ on a rotating table according to figure 1.14?
3. Is a selection of the PLC (SIMOTION C 240 PN) based only on performance parameters (i.e. excluding price)?

Overall classification:

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

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

In Turnov

date 2. 6. 2015

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



Opponent signature