OPPONENT´S ASSESSMENT ON DIPLOMA THESIS

Student´s name and surname: Suresh Ramarao

Name of the diploma thesis: PIV Investigation of the Velocity Field in the Thermoacoustics Device

Supervisor of the thesis: Ing. Petra Dančová, Ph.D.

Opponent: *Ing. Vít Lédl, Ph.D.*

1. Diploma thesis evaluation

Evaluation	excellent	excellent minus	very good	very good minus	good	failed
Meeting the goal and fulfilling task of the thesis					x	
Quality of conducted survey		:			x	
Methodology of solutions			x			
Expert level of the thesis					x	
Merit of the thesis and its potential applicability of results				x		
Formal and graphic level of the thesis			x			
Student´s personal approach						

Mark x in the corresponding box.
Supervisor´s final evaluation is based on his/her overall subjective evaluation.
Grading is stated literally in the article no. 5, neither by a number, nor by a letter.

2. Comments and remarks on diploma thesis:

Meeting the goal and fulfilling task of the thesis: There are five goals defined at the beginning of thesis. First goal is fulfilled partially. Author made a short summary of history of thermoacustics. However modern applications are not mentioned.
Goal number two is fulfilled partially. Author mentioned PIV only. PIV is powerful experimental method but could not be considered as only method for research of thermoacoustics.
Goal number three was fulfilled. Author performed and evaluated experiments using PIV method.
Goal number for was partially fulfilled. Author analyzed results. However comparison with work other authors is missing.
Goal number five was fulfilled.

Quality of conducted survey: Thesis contains short overview of history and basic principle of TA devices. Author cites 17 books, articles and web pages. The quality and relevance of some cited sources is questionable. The author neglects the most important work in the field. The citation format does not meet the standards.

Methodology of solutions: PIV method is used to perform experiments. Use of PIV to solve the problem is possible. It is clear from the published results that the author faced technical problems during his work. However these problems were not solved. It has impact on quality of results.

Expert level of the thesis: Expert level of the work is low. Author used hi-tech experimental technique to perform experiments. But experimental work and evaluation of results is poor. Presented results are not realistic. Different figures present different results, where difference in measured velocity is four orders. These differences are not discussed and commented.

Merit of the thesis and its potential applicability of results: The work has shown how to use PIV to measure fast-changing velocity fields. The opponent assumes that the experimental device can be used for further experiments.

Formal and graphic level of the thesis: Thesis are written English. The opponent does not comment grammar mistakes. There are mistakes in units and selected symbols (Laplace operator, frequency, microseconds, picoseconds....). Quality of figures is low.

Student´s personal approach

3. Questions about diploma thesis:

Figure 30 shows velocity in the range up to 1600 m/s. Is it realistic? Does it correspond to physics? Figures 30, 32 and 34 show velocity in the range of hundreds of m/s. Graphs presented at Fig. 36 and 37 show velocity in range 0.01 m/s. Please explain the discrepancy.

4. Opponent´s statement whether the diploma thesis meets the academic title requirements and whether it is recommended for defense:

I recommend this work for the defense.

5. Opponent´s grading:

Good

Date: 24.5.2019, in Turnov

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Supervisor´s signature