

Zápis z obhajoby disertační práce

konané dne 14.9.2022

na ČVUT Fakultě strojní v Praze od 13:00 hodin

disertant

Ing. Viktor Vajc

na téma: **„Pool Boiling of Water-Glycerin Mixtures“**

Studijní program Strojní inženýrství, obor Konstrukční a procesní inženýrství

Brief assessment of the course of the defence:

The defence was conducted in English due to its preparation in English and the review and participation of a foreign opponent. The Dean, on the proposal of the chairman of the branch council, approved, according to Study and Examination Rules for Students of CTU, the supervisor's involvement via online participation due to current illness. The thesis deals with the theory of bulk boiling and the determination of the heat transfer coefficient during bulk boiling of model aqueous solutions of glycerin on the surface of various structural materials (copper block, nickel-plated copper block, thin titanium foils). The results enhance the theoretical knowledge of bulk boiling and provide engineering insights. The dissertation results have been published in archival journals (5) and conference proceedings (7) plus “Funkční vzorek” VV-2020-Var-01.

Detailed review reports were prepared, and all three referees participated in the defence doc. Marek Růžička (ICHP CAS), prof. Pavel Šafařík (FS CTU) and doc. Mgr. Paweł Wawrzyniak (Technical University of Lodz). All three opinions were positive and recommendatory. The candidate answered the questions and commented on the comments of the opponents. The opponents accepted his explanations and appreciated the way of argumentation.

An extensive general discussion followed (15 questions and comments in total). Ing. Vajc demonstrated a deep knowledge of the issues and extraordinary erudition to answer the questions correctly and accurately.

In the final part, the committee highly appreciated both the submitted work and the course of the defence, as well as the fact that its elaboration was initiated by international cooperation with the University of Ljubjana where part of the experiments was carried out. The committee agreed with the proposal of the foreign opponent to propose the thesis for the **Rector's Prize**.

Result of the secret ballot:

Voting result: number of ballots cast: 10, invalid ballots: 0, 10 votes for and 0 against. The Commission unanimously recommends to the Dean of the Faculty of Mechanical Engineering of CTU in Prague to award the degree of "Doctor" to Ing. Vajc in the study program “Mechanical Engineering” speciality "Design and Process Engineering".

The defence was closed at 15:21.

Prof. Ing. Pavel Dítl, DrSc.
Chairman of the Commission

Questions and comments:

See attached written questions and interviewer comments with their signatures.

Obhajoba DP Ing. Viktora Vajce, která se koná dne

14.9.2022

Dotazy a připomínky:

5 dotazů - pokračování v diskusi
k otázkám položeným v oponentuře
posídker

Jméno tazatele (hůlkovým písmem):

ŠAFAŘIK

Obhajoba DP Ing. Viktora Vajce, která se koná dne

14.9.2022

Dotazy a připomínky:

- 1) Effect of the strong hydroscopical behavior of glycine on the course of experiments.

Jméno tazatele (hůlkovým písmem):

DITZ Pavel

Obhajoba DP Ing. Viktora Vajce, která se koná dne

14.9.2022

Dotazy a připomínky:

- What is difference between different materials and different boundary?
- Please comment HTE enhancement at low concentrations.
- How could be pool boiling results transferred into tube boiling regime?

Jméno tazatele (hůlkovým písmem):

TOMÁŠ VÍTEK

14.9.2022

Dotazy a připomínky:

- 1) Definice "pool boiling" - příliš široká a nespecifická.
- 2) Studie varu na molekularní úrovni? Anomálie materiálových vlastností na složení směsi.
- 3) Heating surface - plated Ni/Cu vliv tloušťky Ni vrstvy.
- 4) Bubble growth rate " $f \cdot D$ " is a physical non-sense and cannot be used for Re-number
- 5) Acoustic emission ve varu - jejich zobrazení?
- 6) Foto - poslední slajd - je to var?

Jméno tazatele (hůlkovým písmem):

MAREK RŮŽIČKA