Supervisor evaluation of the Ing. Roman Kolařík and his Ph.D. thesis

Student evaluation: Roman Kolařík began his Ph.D. study in September 2008 at Polymer Centre, Faculty of Technology, Tomas Bata University in Zlin. During his Ph.D. study, he was participating on 6 different applied rheology oriented research projects with specific attention to 'Applied rheology for advanced polymer processing' project (GAČR P108/10/1325) dealing with polymer melt flow modeling in post die area during extrusion and coextrusion technology. In this area, he was working independently, creatively, precisely and actively. He was able to learn and consequently program all necessary mathematical algorithms and numerical schemes needed for the theoretical research in C++. During his Ph.D. study, he spent 8 months at Department of Chemical Engineering, Faculty of Engineering, University of Waterloo, Ontario, Canada, at the Prof. Costas Tzoganakis research group in order to investigate the film blowing process instabilities in more detail. He demonstrated very good capability to perform complicated experiments on 9-layer film blowing line at the Brampton Engineering company, Brampton, Ontario Canada, which were needed for the proposed model verification purposes. During his study, he has already published two research papers in the following impact factor research journals:

- *Journal of Applied Polymer Science*: 2010 IF = 1.240, ISI Journal Citation Reports © Ranking in 2010: 37/79 (Polymer Science)
- *Chemical Engineering Science*: 2010 IF = 2.379, ISI Journal Citation Reports © Ranking in 2010: 22/135 (Engineering, Chemical)

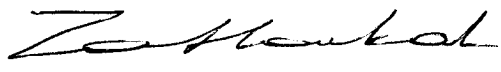
Roman Kolařík has also showed ability to successfully present and defense his scientific work at different international conferences before number of international experts from the same research field. It also should be mentioned that till this date (June 26, 2012), the number of Roman Kolařík's publication records in the Scopus database is 7 (author ID: 35177726500).

It can be stated that Roman Kolařík has demonstrated high independency, creativity and sufficient knowledge fulfilling the studied 'Chemistry and Materials Technology ' Ph.D. study program.

Evaluation of the Roman Kolařík's Ph.D. thesis entitled as 'Modeling of Film Blowing Process for Non-Newtonian Fluids by using Variational Principles': The Ph.D. thesis is focused on development and validation of variational principle based modeling of the non-isothermal film blowing process for non-Newtonian polymer melts in order to understand the complicated relationship between processing conditions, material parameters and film blowing stability. The obtained results can be used for the film blowing process optimization and troubleshooting as well as for the development of more advanced models. The Ph.D. thesis consists of two already published papers in the Journal of Applied Polymer Science and Chemical Engineering Science journal and two manuscripts considered for the publication. This demonstrates high quality, novelty and originality of the research, which has been done by the Roman Kolařík in the studied research filed.

Therefore, it is my pleasure to fully recommend Roman Kolařík and his Ph.D. thesis for the defense.

In Zlin, 26.6.2012



prof. Ing. Martin Zatloukal, Ph.D.