MASARYKOVA UNIVERZITA

Attachment No. 11:

Habilitation thesis reviewer's report

Masaryk University	
Faculty	Faculty of Science
Field of study	Geological sciences
Applicant	***Mgr. Jan Cempírek, PhD***
Unit	Department of Geological Sciences
Habilitation thesis (title)	***Natural Al-rich borosilicates – petrology, mineralogy, and crystal chemistry***
Reviewer	Professor Darrell J. Henry
Unit	Louisiana State University

Reviewer's report

I have been requested to write a letter on behalf of **Jan Cempírek**, Institute of Geological Sciences of Masaryk University, who is applying for habilitation. I am familiar with Dr. Cempírek's research from the literature, presentations at professional meetings, and from personal interactions with him at meetings and field conferences. It is my great pleasure to fully endorse his application based on his internationally recognized research, his overall service to the scientific community, his teaching and his outreach to the public.

I have been aware of Dr. Cempírek's research involving a variety of minerals associated with granitic rocks and hydrothermal settings for a number of years (since 2003). Because tourmaline is one of my areas of research expertise, I followed his research with great interest. Many of the minerals that he works on include light elements, and it is not always easy to extract useful information from these minerals, but Dr. Cempírek has been able to do that as demonstrated in many fine publications in international journals. His careful analytical capabilities and his attention to detail, both analytically and petrologically, make sure that his work will continue to be used for many years to come.

Since 2004 (mostly after 2010), Dr. Cempírek has been first author or co-author on 27 papers in the top-ranked journals in crystallography, mineralogy, petrology and economic geology. The publications are well-received and have been cited by many articles in professional journals. The following papers demonstrate the breadth of Dr. Cempírek's research capabilities.

Cempírek, J., Novák, M., Ertl, A., Hughes, J.M., Rossman, G.R., Dyar, M.D. (2006): Fe-bearing olenite with tetrahedrally coordinated Al from an abyssal pegmatite at Kutná Hora, Czech Republic: structure, crystal chemistry, optical and XANES spectra. The Canadian Mineralogist, 44, 1, 23-30.

Cempírek, J., Houzar, S., Novák, M. (2008): Complexly zoned niobian titanite from hedenbergite skarn at Písek, Czech Republic, constrained by substitutions $Al(Nb,Ta)Ti_{-2}$, $Al(F,OH)(TiO)_{-1}$ and $SnTi_{-1}$. Mineralogical Magazine, 72, 6, 1317-1329.

Cempírek, J., Novák, M., Dolníček, Z., Kotková, J., Škoda, R. (2010): Crystal chemistry and origin of grandidierite, ominelite, boralsilite and werdingite from the Bory Granulite Massif, Czech Republic. American Mineralogist, 95, 1533-1547.

Bačík, P., **Cempírek, J.**, Uher, P., Novák, M., Ozdín, D., Filip, J., Škoda, R. (2012): Oxy-schorl, $Na(Fe_2^{2+}Al)Al_6Si_6O_{18}(BO_3)_3(OH)_3O$, a new mineral from Zlatá Idka, Slovak Republic and Přibyslavice, Czech Republic. American Mineralogist 98, 485-492.

Dzikowski, T.J., **Cempírek, J.**, Groat, L.A., Dipple, G.M., & Giuliani, G. (2014): Origin of gem corundum in calcite marble: The Revelstoke occurrence in the Canadian Cordillera of British Columbia. Lithos 198–199, 281–297.

Cempírek, J., Grew, E.S, Kampf, A.R., Ma, C., Novák, M., Gadas, P., Škoda, R., Vašinová-Galiová, M., Pezzotta, F., Groat, L.A. & Krivovichev, S.V. (2016) Vránaite, ideally Al16B4Si4O38, a new mineral related to boralsilite, $Al_{16}B_6Si_2O_{37}$, from the Manjaka pegmatite, Sahatany Valley, Madagascar. American Mineralogist 101, 2108-2117.

In addition, to the publications in international peer-reviewed journals, Dr. Cempírek has published another 9 articles in Czech and an additional 12 general interest articles. In other words, his research impacts an international audience as well as a regional audience.

Dr. Cempírek takes his research to a wide audience in the presentations that he gives at international meetings – he has 22 abstracts in which he is author or co-author. Another aspect that is a very important to the geosciences is the organization and administration of topical workshops and field conferences. Dr. Cempírek has been involved in organizing a number of these well-received international endeavors including LERM 2003, IMA 2010, CEMC 2014 and PEG 2015.

Dr. Cempírek regularly contributes his time and expertise in service to the profession. He is an associate editor of Canadian Mineralogist and is a frequent reviewer of papers in journals related to mineralogy and petrology.

Dr. Cempírek has demonstrated his wide-ranging background by teaching a variety of courses at both Masaryk University and the University of British Columbia – from X-ray diffraction to mineral deposits to precious stones. I do not have direct knowledge of his teaching abilities. However, my interactions with Dr. Cempírek at professional meetings suggest that he is a strong teacher. He has advised several Master's theses, primarily related to mineralization. Dr. Cempírek has been involved in outreach by giving a number of general lectures for the public on a wide range of topics, particularly related to precious stones.

Dr. Cempírek is an excellent researcher, is highly productive producing numerous scholarly articles and has an impact in the international community of scientists. Based on this integrated record of achievement, I strongly support his application.

If further information would be useful, please do not hesitate to contact me.

Reviewer's questions for the habilitation thesis defence (number of questions up to the reviewer)

1. What do you consider the next frontier of science in the general fields of mineralogy and petrology?
2. Somewhat related – If you were able to purchase a new piece of instrumentation, what would you get and why?

Conclusion

The habilitation thesis submitted by **Jan Cempírek** entitled **Krystalochemie a fázové vztahy Fe,Mg,Mn,Al-minerálů v granitických systémech** ***meets*** the requirements applicable to habilitation theses in the field of **Geologické vědy**.

In on January 23, 2017