Report of the Habilitation Committee for the promotion of
Krzysztof Ciepliński
to Docent in the area Mathematics – Mathematical Analysis

On February 15, 2012, the Scientific Council of the Mathematics Institute of the Silesian University in Opava approved the Habilitation Committee consisting of

Prof. RNDr. Jaroslav Smítal, DrSc., Silesian University in Opava - chair
Prof. dr. hab. Roman Ger, Silesian University in Katowice, Poland
Prof. dr. hab. Kazimierz Nikodem, University of Bielsko-Biala, Poland
Prof. Dr. Ludwig Reich, Karl-Franzens University, Graz, Austria
Doc. RNDr. Marta Štefánková, Ph.D., Silesian University in Opava

The Committee was subsequently appointed as aproved. The Committee observed that the proposal fulfils all the requirements as stated in § 72 of the Czech Republic Law no. 111/98 Sb. (the University Law), as well as all other conditions. The Committee recommended to continue the habilitation process and appointed the following referees for the evaluation of the habilitation thesis „Conjugacy equation in dimension one and its applications in iteration theory":

Prof. dr. hab. Maciej Sablik, Silesian University in Katowice, Poland
Prof. Dr. Jens Schwaiger, Karl-Franzens University, Graz, Austria
Doc. RNDr. Marta Štefánková, Ph.D., Silesian University in Opava

After receiving referees' reports the Committee assessed the qualifications of the applicant and issues the following report.

1. Personal data of the applicant

Krzysztof Ciepliński   Asistant Professor (adiunkt), Institute of Mathematics, Pedagogical University in Kraków

Born: 1969
Polish ID no.:
Address:
Marital status:

Educational history:
1988 - 1993   Studies in Mathematics at the Pedagogical University in Kraków
1993   M.Sc. (*magister*) in Mathematics (supervisor M. C. Zdun), Pedagogical University in Kraków
2000   Ph.D. (*doktor*) in Mathematics (supervisor M. C. Zdun), Pedagogical University in Kraków

Employment history:
1993 – 2000   Lecturer (*asystent*)
2000 – present   Asistant Professor (*adiunkt*) Institute of Mathematics, Pedagogical University in Kraków

2. Pedagogical activity

Since 1993 K. Ciepliński has been teaching a number of regular courses at the Pedagogical University, including Algebra, Algebra and number theory, Geometry, Introduction to logic and set theory, Introduction to topology, Linear algebra, Mathematical analysis, Probability theory and mathematical statistics. He was supervisor of 9 bachelor and 2 master theses.

3. Scholarly and research activities

The main field of research interests of Krzysztof Ciepliński are functional equations, iteration theory and dynamical systems in one dimension; in particular, the dynamics of flows on the circle. He reported or lectured on his results at 15 international conferences in Austria, France, Italy, Poland, Portugal, Spain and Ukraine. He is a member of the Editorial Board of an international journal and was a coorganizer (scientific secretary) of 2 international conferences.

4. Publications

Krzystof Ciepliński has authored or coauthored 27 papers in internationl journals and 2 papers as chapters in books on functional equations. His papers earned about 50 citations. There exist more than 10 so-called qualified citations, where the citing author uses the cited work in an essential way. The submitted habilitation thesis „Conjugacy equation in dimension one and its applications in iteration theory" is a collection of 6 published papers equipped with an introduction; the coauthor of 3 of them, M. C. Zdun, confirmed in a written form that the aplicant's contribution was significant and relevant.

[1] K. Ciepliński and M. C. Zdun, *On semi-conjugacy equation for homeomorphisms of the circle*, in: Functional equations - results and advances, 135 – 158, Kluwer Acad. Publ., Dordecht, 2002.

[2] K. Ciepliński and M. C. Zdun, *On a system of Schröder equations on the circle*, Internat. J. Bifur. Chaos Appl. Sci. Engrg. 13 (2003), 1883 – 1888.

[3] K. Ciepliński, *Topological conjugacy of disjoint flows on the circle*, Bull. Korean Math. Soc. 39 (2002), 333 – 346.

[4] K. Ciepliński, *On conditions guaranteeing that mappings are elements of iteration groups*, Appl. Math. Lett. 24 (2011), 1415 – 1418.

[5] K. Ciepliński, *Schröder equation and commuting functions on the circle*, J. Math. Anal. Appl. 342 (2008), 394 – 397.

[6] K. Ciepliński and M. C. Zdun, *On uniqueness of conjugacy of continuous and piecewise monotone functions*, Fixed Point Theory Appl. 2009, Art. ID 230414, 11 pp.

The referees' reports concerning the habilitation thesis are positive.

From the report of Prof. Sablik: „... I have to say that the results are new and interesting, in the positive meaning of the words.

The conjugacy equation is of a great importance not only in iteration theory but also in the theory of dynamical systems, and more generally, in mathematics. The quality of presented results is highly satisfactory. Moreover, the results are promising further developments and opening new areas for future investigation. ... I am convinced that from the scholarly point of view the dissertation presented by Dr. Krzysztof Ciepliński satisfies the usual requirements for habilitation

and I do support his claim for promotion."

From the report of Prof. Schwaiger: „... Summarizing (and omitting to mention many other results of the thesis) I want to express my opinion that the work gives a very detailed description of some parts of the theory of dynamical systems in dimension one. The topics considered are mainly connected with the Schröder equation and with iteration groups and semigroups. The author definitely shows his skills in the area and I highly recommend his promotion to the rank of *Docent.*"

From the report of Doc. Štefánková: „... The thesis, as well as the particular papers, have very good logical structure, they are well treated, the problems studied are interesting and the results are of good quality. Summarizing the above, it is a pleasure to recommend the habilitation thesis „Conjugacy equation in dimension one and its applications in iteration theory" for acceptance and to promote Mgr. Krzysztof Ciepliński, Ph.D. to „docent"."

Conclusion

The Committee took into account the thesis, the referees' reports and all other documments characterizing the activities of the applicant. The Committee is convinced that Krzystof Ciepliński fulfills all the requirements as stated in § 72 of the University Law as well as the conditions for pomotion to the rank of docent in mathematical disciplines set by the Scientific Council of the Silesian University in Opava. Therefore

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the Committee unanimously recommends to promote
Krzystof Ciepliński, Ph.D.
to a Docent in the area of Mathematics – Mathematical Anlysis
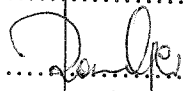
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Opava, June 19, 2012

Prof. RNDr. Jaroslav Smítal, DrSc.

Prof. dr. hab. Roman Ger

Prof. dr. hab. Kazimierz Nikodem

Prof. Dr. Ludwig Reich

Doc. RNDr. Marta Štefánková, Ph.D