

## PUBLIC LECTURE EVALUATION

### Masaryk University

#### Faculty

#### Procedure field

#### Applicant

#### Lecture date

#### Lecture topic

Persons present  
(number)

Designated evaluators  
(board members)

Faculty of Science

Mathematics – Geometry

Yaroslav Bazaikin, Ph.D., D.Sci.

2. 11. 2020

On constructions of cohomogeneity one  $\text{Spin}(7)$ -holonomy Riemannian metrics

(see attached list of attendees)

prof. RNDr. Jan Slovák, DrSc.

Faculty of Science, Masaryk University

prof. Rikard von Unge

Faculty of Science, Masaryk University

prof. RNDr. Vladimír Souček, DrSc.

Faculty of Mathematics and Physics, Charles University

prof. RNDr. Pavel Exner, DrSc.

Faculty of Nuclear Sciences and Physical Engineering,  
Czech Technical University

doc. Pasha Zusmanovich, Ph.D.

Faculty of Science, University of Ostrava

The lecture by Yaroslav Bazaikin followed the plan announced in its abstract:

“An intrinsic property of a curved Riemannian manifold is the a priori non-commutativity of directional derivatives and, as a consequence, the dependence of the parallel translation operation on the chosen path on the Riemannian manifold. The holonomy group serves as a measure of this dependence and is a global object related to a Riemannian manifold that characterizes deep properties of its geometry. In particular, in many important cases, the presence of a special holonomy group allows us to conclude that the Riemannian manifold is Einstein, which explains the importance of the concept of holonomy in applications to theoretical physics. After getting familiar with the basic concepts of holonomy groups, the talk will give a survey of the author's results on constructions of examples of  $\text{Spin}(7)$ -holonomy Riemannian manifolds of cohomogeneity one, based on the geometry of 3-Sasakian manifolds.”

The applicant succeeded in following this very ambitious scheme and he also presented a fair overview of further development of his ideas in international context, answering the main question in the report by Andrew Swann, in the very end of the presentation.

All questions in the short discussion after the lecture were answered, too.

## Conclusion

The lecture delivered by Yaroslav Bazaikin, entitled “On constructions of cohomogeneity one Spin(7)-holonomy Riemannian metrics” and delivered as part of the habilitation, **demonstrated** sufficient scholarly qualifications and pedagogical capabilities expected of applicants participating in a habilitation procedure in the field of Mathematics - Geometry.

In Brno on 2. 11. 2020

prof. RNDr. Jan Slovák, DrSc. ....  
signature