

MATH-668

Summer School on Generalized Curvature (2018)

Troyanov Marc

Cursus	Sem.	Type
Mathematics		Obl.

Language of teaching	English
Credits	2
Session	
Exam	Oral presentation
Workload	60h
Hours	29
Courses	23
TP	6
Number of positions	30

Frequency

Only this year

Remark

Next time: From Sept. 2 to Sept. 7, 2018

Summary

The goal of this school is to give an introduction for non experts to several contemporary notions of curvatures for metric spaces.

Content

Over the last few decades, there has been intense research on various notions of curvature for non-smooth spaces. The aim of this school is to introduce some aspects of generalized curvatures on metric spaces, graphs, and polyhedra. The following subjects will be covered: Lipschitz-Killing curvatures, discrete conformal maps, spectral theory of graphs, metric spaces with bounded curvature and surfaces with bounded integral curvature in the sense of Alexandrov. Besides the main courses, several talks by researchers active in the domain of the school will be given. The target audience for this school are PhD students and postdocs interested in geometry and related subjects.

There will be 5 minicourses :

Andreas Bernig (Frankfurt)	<i>Lipschitz-Killing curvatures.</i>
Matthias Keller (Postdam)	<i>Upper curvature bounds and spectral theory.</i>
Marc Troyanov (EPFL)	<i>Alexandrov surfaces with bounded integral curvature.</i>
Thomas Richard (Paris-Est)	<i>Intrinsic geometry of metric spaces with curvature bounded from below.</i>
Boris Springborn (Berlin)	<i>Discrete conformal maps.</i>

8 additional lectures will be given by expert working in the field of singular or discrete geometry and some interactive workshops will be organized.

Keywords

Géométrie Métrique, Espaces Singuliers, Courbures de Lipschitz-Killing, Courbure Discrete.

Learning Prerequisites**Recommended courses**

Some familiarity with basic differential geometry and metric space geometry.

Learning Outcomes

By the end of the course, the student must be able to:

- access the research literature in metric geometry and related curvature notions.

Resources

Bibliography

The book by L. Najman and P. Romon "Modern Approaches to Discrete Curvature" Springer 2017. More references will be given.

Ressources en bibliothèque

- [Modern Approaches to Discrete Curvature / Najman & Romon](#)
- [\(electronic version\)](#)

Websites

- <https://gencurv2018.epfl.ch/>