POLITECNICO DI TORINO

DISMA Dipartimento di Scienze Matematiche G. L. Lagrange

ECCELLENZA 2018 • 2022

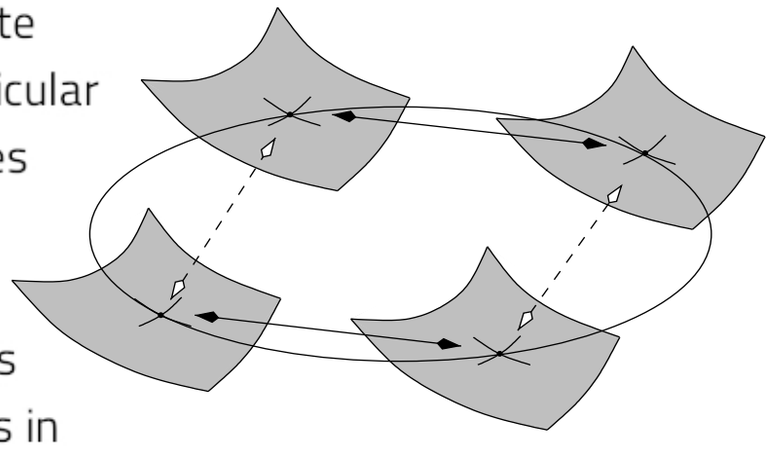
Discrete Differential Geometry
Integrable discretization

PhD course, held by Prof. Udo Hertrich-Jeromin, Dr Mason Pember and Dr Gudrun Szewieczek, from University of Technology Vienna

A key research area in discrete differential geometry is "integrable discretizations". Instead of attempting to approximate a smooth theory by a (fine enough) discretiziation, the idea in integrable discretizations is to create an independent discrete theory that is used to model the problem at hand.

This approach has several advantages, from highly efficient numerical algorithms that seem to be very stable also in long term or asymptotic behaviour, to a deeper understanding of the integrable nature of the smooth theory being discretized.

The lectures will give an introduction to basic ideas of integrable discretization, an outline of some key methodology and of the problems to be solved on the way; to elucidate the presented concepts some particular classes of smooth/discrete surfaces will be discussed in detail in the second part of the lectures. Then, students will prepare presentations on smooth and discrete geometries in pairs/groups, based on classical references and recent research articles.



Tentative schedule

Prof. Udo Hertrich-Jeromin
11 - 12 Feb - all day
Introduction and Discussion

Dr Mason Pember and
Dr Gudrun Szewieczek
13 - 15 Feb - all day
Integrable and Discrete Geometry

18 Feb - 10:00 - 16:00
Research talk on Discrete Differential Geometry

18 - 27 Feb
Preparation of presentations

28 Feb - all day
01 Mar - all day
Students' presentations

Progetto di eccellenza @ DISMA - Politecnico di Torino
Thematic semester in Differential Geometry

Next event: Dr S. Igonin's course - May - June 2019
Past event: TENSORS - workshop - 10 - 14 September 2018

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