

Outreach

Rock fabrics provide significant information on pattern-forming processes, the physical conditions and the history of geo-materials, and the generally complex interaction between physical conditions, fabrics and fabric-forming processes. The quantification of fabrics facilitates the comparison between fabrics formed naturally, experimentally or by simulations and, therefore, builds a bridge between nature, experiment and theory.

Course overview

In detail, the workshop will deal with

- an introduction to fabrics and their characteristics in different material and on different scales,
- basic concepts of fractal geometry,
- fractal geometry methods related to the analysis of pattern inhomogeneities and anisotropies,
- the various problems of automated analysis of patterns in natural material,
- the demonstration and application of programs for automated analysis, in particular in relation to inhomogeneity and anisotropy analysis, such as the map-counting method, the modified Cantor dust and perimeter methods, and further newly developed methods,
- the application of pattern analysis with respect to the analysis of material fabrics, their history and formation conditions.

In addition, participants will also be given the opportunity for presenting own research and applying automated methods to their own data sets.

Course requirements

The course is aimed at PhD students and young researchers. No further prerequisites are required. The course is limited to 12 participants.

Preliminary course schedule

October 7th: Icebreaker

October 8th:

Introduction

- Concepts of fabrics and their characteristics in different material and on different scales
- Basic concepts of Fractal Geometry and non-linear processes
- Fundamental analytical methods of Fractal Geometry (box-counting, Cantor dust, perimeter method, mass-dimension method etc.) - demonstration and application

October 9th:

Specific methods of inhomogeneity and anisotropy analysis

- Map-counting method
- Modified Cantor dust method
- Modified perimeter method
- Mapping of rock fabric anisotropy (MORFA)
- New methods

Demonstration and applications; advantages, limits and problems of analyzing fractal or non-fractal patterns in natural material

October 10th:

Automation of methods

- Introduction to principles of automation and programs
- Advantages, limits and problems of automation
- First applications of programs

October 11th:

Application of automated methods

- Box-counting / map-counting methods: application on crystal distribution patterns
- Perimeter method and direction-related modified perimeter method: application on quartz grain boundary systems
- Artificial-neural-network-based mineral identification
- Application of these methods on data sets provided by the participants
- Discussion and interpretation in relation to pattern-forming processes

October 12th:

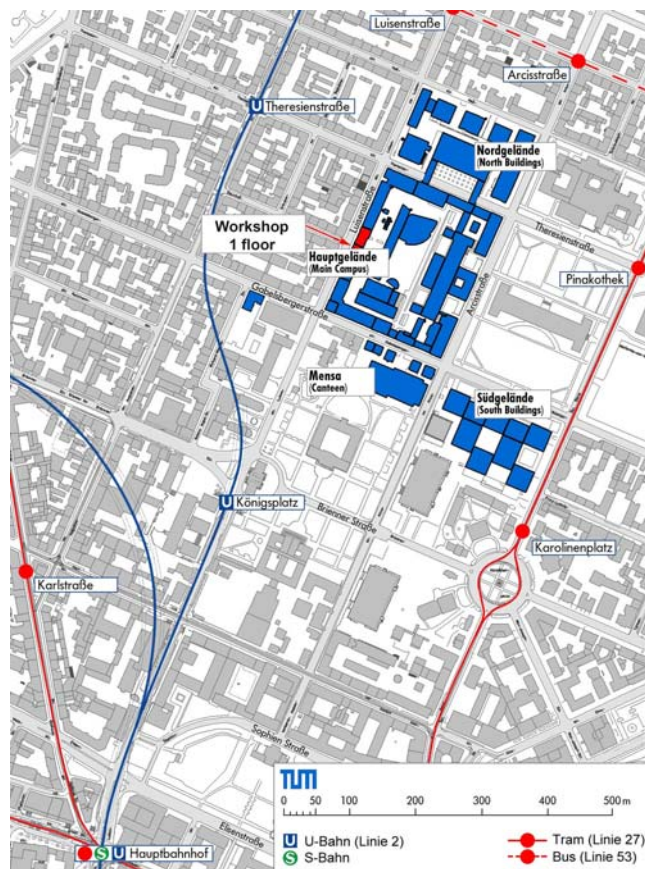
- Application of automated methods (cont.)
- Application of the modified Cantor dust method
- Application of MORFA on magnetic rock fabrics
- Further new methods
- Application of presented methods on data sets provided by the participants
- Discussion and interpretation in relation to pattern-forming processes
- Concluding discussion

This workshop is presented by Prof. Dr. Jörn H. Kruhl, Dipl.-Geol. Axel Gerik and Dipl.-Geol. Mark Peternell (*Tectonics & Material Fabrics Section, TU München, Munich, Germany*) and Prof. Dr. Frank Fueten (*Dept. of Earth Sciences, Brock University, St. Catharines, Ontario, Canada*).

The workshop is offered by the International Graduate School *THESIS* and supported by the Elite Network of Bavaria.

Venue

The workshop will be held at the main building of the Technische Universität München.



Corresponding address

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Registration

All Participants must register on-line via the workshop website. A confirmation email will be issued by the organizers after successful registration. Registration deadline is August 1st 2007.

Fees

The course fee of EUR 70,- for students and EUR 90,- for non-students covers the course materials and refreshments. Participants from Eastern European countries and countries of the developing world may apply for financial support (a short CV and outline of current research is required by July 15th 2007).

Payments

The course fee should be made payable to Jörn H. Kruhl by September 1st 2007:

Domestic bank transfer

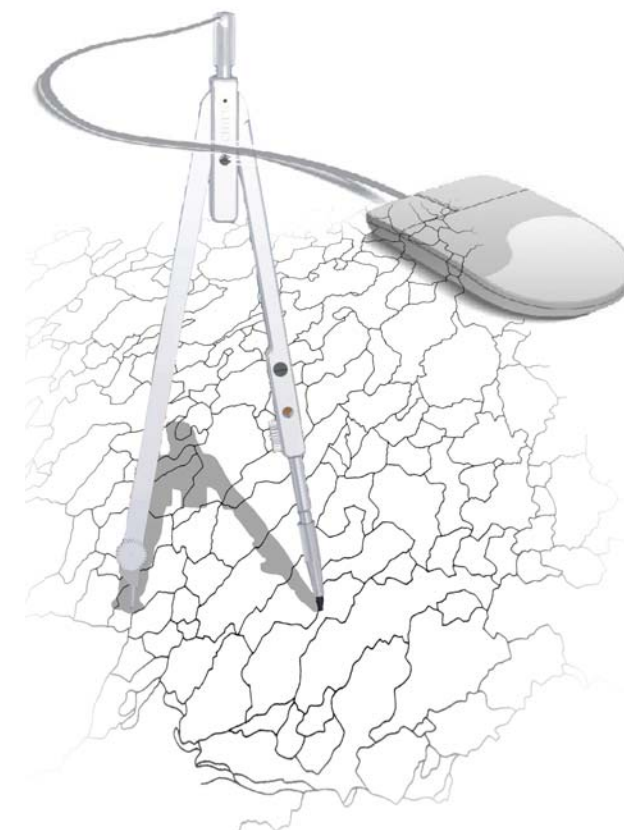
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Accommodation

The organizers can help finding reasonably priced accommodation. Please indicate your request for assistance in the online registration form.



European Workshop on Fabric Quantification

October 8th - 12th, 2007

Tectonics and Material Fabrics Section
Technische Universität München

http://www.geo.tum.de/events/fabrics_workshop_07/