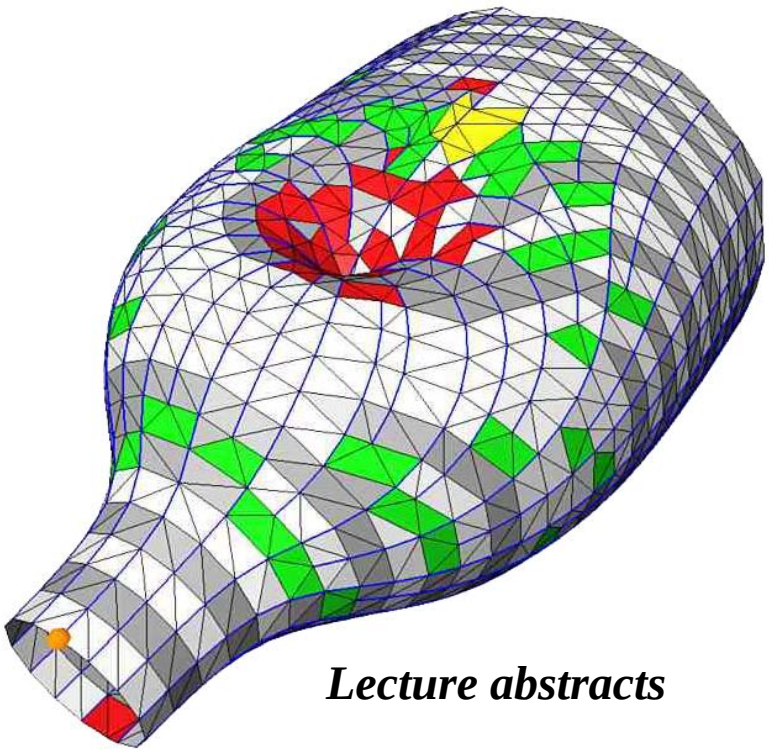
Association pour la Création de la Cité des Géométries
Université de Valenciennes et du Hainaut-Cambrésis

Summer School on Geometry and Visualization

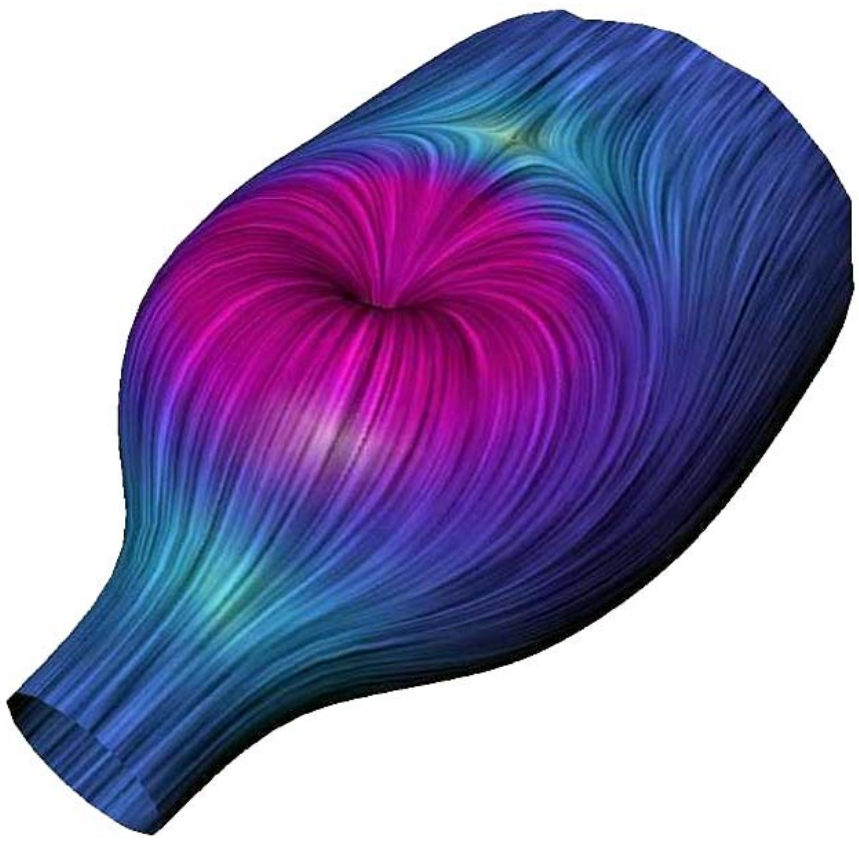
Maubeuge, France
June 21-25, 2004



The summer school will provide a concise introduction to the mathematical foundations of visualization techniques as well as to real-world applications of visualization techniques in different scientific areas. The theoretical part of the summer school focuses on fundamental topics from differential to discrete geometry, which play an essential role in the study of polyhedral shapes. Modern visualization algorithms will be introduced and complemented with hands-on experiments in the practical part.

Lectures and practical exercises are intended for students majoring in computer science and mathematics as well as other scientific subjects like physics, chemistry, biology and medicine as well as professionals using visualization technologies. Various applications will provide an informative overview of current visualization techniques.

Lecture abstracts



A. El Kacimi (Université de Valenciennes et du Hainaut-Cambrésis)

This part aims at casting a quick glance on some notions about differential geometry and algebraic topology: curvature (of curves and surfaces embedded in Euclidean space) and simplicial homology, with examples of calculations for the circle and compact orientable surfaces; the Euler-Poincaré Number will be introduced by homological as well as combinatorial methods.

H.C. Hege (Zuse Institute Berlin)

The lectures will focus on the notion and visualization of scalar, vector and tensor fields as well as reconstruction of geometries from 3D image data and the statistical analysis of shapes. All lectures will be illustrated by applications of visualization techniques in different scientific areas, mainly from biomedicine.

K. Polthier (Zuse Institute Berlin)

In recent years the Mathematics of polyhedral shapes has become an essential toolkit for the analytic study of meshes and the development of new algorithms in computer graphics and scientific visualization. These lectures will give an introduction to the discrete differential geometry of polyhedral meshes. The topics include, for example, discrete differential operators, discrete Gauss and mean curvature, discrete vector fields and differential forms, energy based optimization techniques for curves and surfaces, smoothing of noisy meshes, numerical minimization techniques. Applications will cover a wide range from mathematical visualization and online visualization to optimization techniques in CAD.

Information

Concerning the courses: aelkacim@univ-valenciennes.fr
Concerning the organisation of the summer school: v.vaillant.adus@free.fr or (00 33)3 27 53 01 35
Reservation required, free lodging.

Information on Summer School
Geometry and Visualization
Maubeuge, France

Summer School dates: Monday 21st to Friday 25th June

Place: Maubeuge, pôle universitaire

Programme:

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Lectures and practical exercises are intended for students majoring in computer science and mathematics as well as other scientific subjects like physics, chemistry, biology and medicine as well as for professionals using visualization technologies. Various applications will provide an informative overview of current visualization techniques.

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Classes in English

Number of participants: Limited to 50 students

Accommodation:

Provided and paid for by Association pour la création de la Cité des Géométries

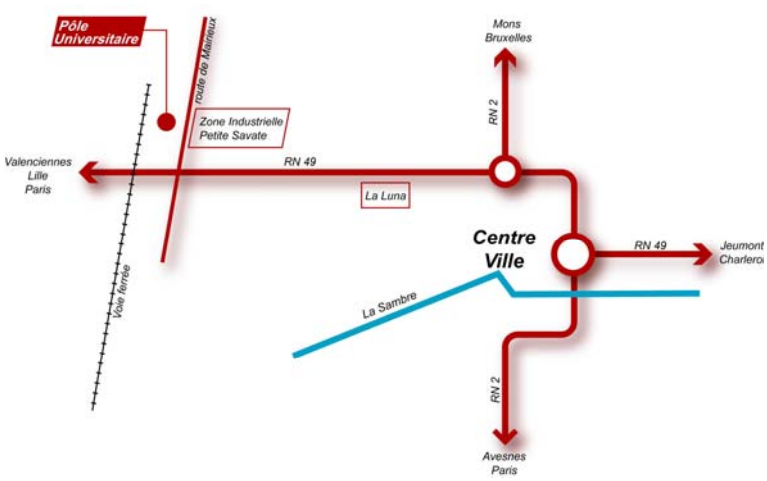
Catering:

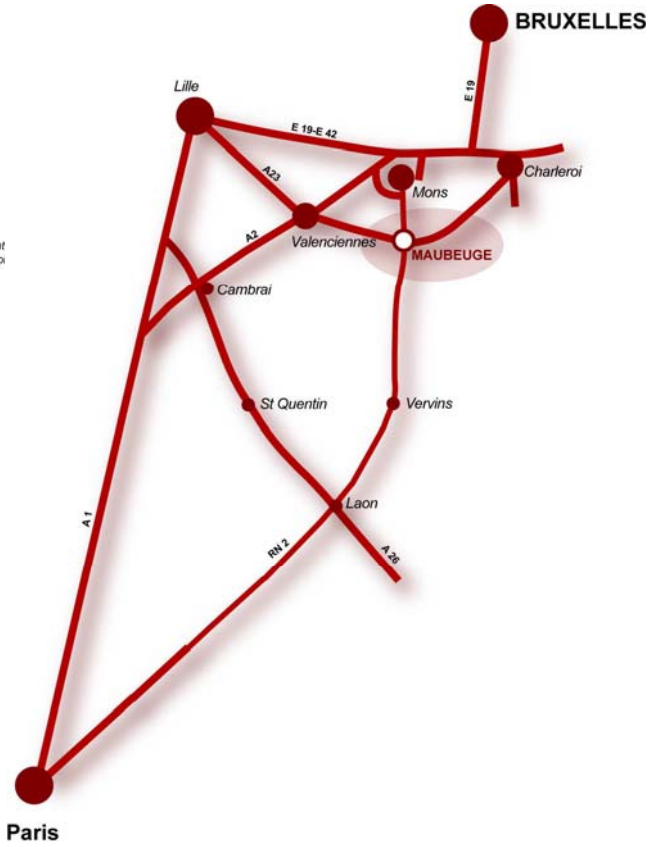
At the participants' expense

- lunch: university cafeteria
- dinner: participant's choice

Access

Rail services Paris-Maubeuge and Lille-Maubeuge: transfer from and to the Maubeuge train station on Sunday 20th and Friday 25th or Saturday 26th June





Information:

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Organisation: v.vaillant.adus@free.fr or +33 (0)3 27 53 01 35

Registration Form

Surname:
Name:
Place and date of birth:

Address
- Street:
- Number:
- City:
- State:
- Postcode:
- Country:

E-mail address:
Phone:
Fax:

Higher education curriculum:

Current place (University, school):
Department (Laboratory):
University/school address
- Street:
- Number:
- City:
- State:
- Postcode:
- Country:

E-mail address:
Phone:
Fax:
Supervisor:
Current subject of study (current field of study):
Goal (why are you following these courses):

Reasons for interest in Summer School for mathematical and scientific visualisation:

Experience in visualisation or related fields:

Email: v.vaillant.adus@free.fr

Postal address:
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