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A Web-based Learning Exemplar Using NAFEMS Resource Materials

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View of Zürich



The Grossmünster with its prominent twin spires is the symbol of the city

FENET SEMINAR & TECHNOLOGY WORKSHOPS

Zurich (Geroldswil), Switzerland

Wednesday, 12th June 2002

**NAFEMS/FENET Awareness Seminar:
„Web Based Training for Engineering Analysis“**

Thursday, 13th – Friday, 14th June 2002

FENET Technology Workshop

Workshop Objectives

To provide a forum in which best available knowledge is collated and disseminated to the finite element community through a pair of workshops. A key objective is to collate contemporary wisdom and deliver this in a form that is directly useful to industry.

Workshop Topics

Durability and Life Extension (DLE):

FE Issues Related to Structural Integrity Issues (Fracture, Fatigue, Creep)

Multi Physics and Analysis (MP):

Computational Modeling of Loosely Coupled Interaction in Multiphysics Problems

Product and System Optimization (PSO):

The Use of Evolutionary Algorithms

Education & Dissemination (E&D):

A Proposed User Survey and Possible Approaches to Reducing Barriers to the Effective Use of FEA in Industry

Preliminary Version: 2nd May 2002



FENET THEMATIC NETWORK

Contract No G1RT-CT-2001-05034

COMPETITIVE AND SUSTAINABLE

GROWTH (GROWTH) PROGRAMME



NAFEMS

The International Association for the
Engineering Analysis Community

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AT A GLANCE

Seminar and workshop location

Hostellerie Geroldswil
Am Dorfplatz
CH-8954 Switzerland
Internet: www.hostellerie-geroldswil.ch
e-mail: info@hostellerie-geroldswil.ch



Duration

Wednesday, 12 th of June	10:30 - 16:30 (19:00)
Thursday, 13 th of June	09:30 - 17:30
Friday, 14 th of June	08:30 - 16:30

Accommodation

Please **book your hotel room as soon as possible by yourself**. Information about hotel accommodation in Geroldswil please find on page 11.

Attendees

The NAFEMS/FENET Seminar and the FENET workshops are open to all FEM users.

In addition if you also want to present at, or contribute to the workshops, please contact the RTD Theme co-ordinators mentioned in this invitation.

Contact

If you have any questions don't hesitate to contact us:
WERBOS GbR
IT – Marketing, Services, Consulting
NAFEMS Contact for Germany, Austria, Switzerland
Schillerstr. 6
85567 Grafing b. München
Germany
Phone ++49 - (0) 80 92 - 8 35 50
Fax ++49 - (0) 80 92 - 8 35 51
e-mail nafems@werbos.de
www.werbos.de

Attendance costs

NAFEMS/FENET Awareness Seminar

NAFEMS + FENET member	free *
Non-Member	Euro 125,- £75,-

VAT at 17.5% should be added for all Delegates

FENET Technology Workshops **Euro 235,-**

The costs for the FENET Technology Workshops cover each day two coffee breaks, lunch, and the hire of the conference rooms. The costs also covers dinner on Thursday, 13th June 2002.

* Subject to availability of free member place credits.

Payment:

Bank transfer

We will send an invoice after your registration. Please transfer the amount of money in advance of the workshops to following bank account:

Kreissparkasse Ebersberg
Marktplatz
D-85567 Grafing b. München
Germany
Bank number: 700 518 05
Account number: 399 048

Credit Card

Please fill in details on the registration form or you can pay directly in Geroldswil with either **Master Card or Visa Card**. **No other cards can be accepted.**

Cash

You can pay in cash (Euro only) at the registration desk in Geroldswil (please make sure you have the exact amount of money).

Registration

For your registration please use the registration form at page 13. Please register separately for the NAFEMS/FENET awareness seminar on page 12.

FORMATS

NAFEMS/FENET Awareness Seminar

Wednesday, 12 th June 2002	
10:30 - 16:30 / 19:00	
NAFEMS/FENET Awareness Seminar	
Room 5	
Web Based Training for Engineering Analysis	

FENET Technology Workshops

Thursday, 13 th June 2002	
09:30 - 13:00	14:00 - 17:30
Workshops	Workshops
Room 1	Room 1
Multi Physics & Analysis	Multi Physics & Analysis
Room 2	Room 2
Durability and Life Extension	Durability and Life Extension
	Room 3
	Product & System Optimisation

Friday, 14 th June 2002	
08:30 - 12:00	13:00 - 16:30
Workshops	Plenary Session
Room 1	Room 5
Multi Physics & Analysis	Education & Dissemination
Room 2	
Durability and Life Extension	
Room 3	
Product & System Optimisation	
Room 4	
Education & Dissemination	

NAFEMS/FENET AWARENESS SEMINAR

Web Based Training for Engineering Analysis

Workshop Aims

The workshop intends to provide delegates with an overview of emerging tools and products, which seek to provide web-based training in the area of engineering analysis. It will review a number of active projects in this field with presentations given by leading experts and will cover intended future developments. Opportunities will also be given for hands-on experience of the [MOPLE Virtual Learning Centre](#).

Who Should Attend

The workshop is primarily focused towards practicing FE Analysts or Academics, who have a remit towards education and continuous professional development of staff or students within their organisation.

Agenda

- 10:30 Coffee & Registration
- 10:45 **Chairman's Welcome**
Gilbert Pepper, CIMNE, Spain
- 11:00 **FE Transfer: A Web Based Course for the Application of FEA in Structural Mechanics**
P Fritzsche, FH Aargau, & J P Bersier, EIA Fribourg, Switzerland
- 11:30 **A Web-based Learning Exemplar Using NAFEMS Resource Materials**
Jim Wood, Strathclyde University, Jim Thompson, University of Paisley, UK
- 12:00 **A Typical Case from the Practice, Explained Step by Step for Beginners:
Understanding of Material Failure in a Heat Exchanger by Means of Thermal and Structural Analysis**
Yasar Deger, Sulzer, Switzerland
- 12:30 Lunch
- 14:00 **A Multimedia Distance Learning Approach to Post Graduate Level Teaching of
Finite Element Analysis in Engineering Applications**
Ray Matela, The Open University, UK
- 14:30 **MOPLE Virtual Centre, an Internet Environment for Hosting Distance Learning Courses**
Jose Luis Onate, CIMNE, Spain
- 15:00 **E-Learning With an industrial FE Simulation System**
John Rance, Rockfield Software, UK
- 15:30 **Viable Strategies for Web-Based Training**
Gilbert Pepper, CIMNE, Spain
- 16:00 **Review & Discussion**
Gilbert Pepper, Chairman
- 16:30 Close & Coffee

Optional Activity

- 17:00 - 19:00 **Hands on Workshop for MOPLE Virtual Learning Environment**

This Seminar is partly funded by the EC IST Programme through the MOPLE Project.

Please register separately on page 12!

FENET TECHNOLOGY WORKSHOPS

Multi Physics and Analysis (MP):

Computational Modeling of Loosely Coupled Interaction in Multiphysics Problems

In the last two workshops several topics have been identified in the area of Multi-Physics and Analysis (MPA):

- The strategies used to solve the different problems (de-coupled, loosely coupled, strongly coupled);
- The identification of two main fields of study in the field of MPA (fluid-structure interaction and thermo-mechanics);
- The continuing need for good solution algorithms and computing strategies.
- The lack of benchmarks and existence of only a small number of validated software tools.

These topics render Multi-Physics problems too complex and wide ranging to study as a single phenomenon, such that it is proposed to separate the study of MPA problems into two workshops and study one single topic in each, namely:

- Loosely coupled analysis.
- Strongly coupled analysis.

This strategy will enable a highly focused area for discussion for the attendees of each of the workshops.

Workshop Objectives

The aim of the workshop is to identify and discuss recent advances in loosely coupled problems. Accordingly, the specific objectives of the workshop are:

- To define a validation and verification strategy for loosely coupled simulation methods and software.
- To identify and select benchmark problems incorporating experimental results for validation of loosely coupled numerical simulation codes.
- To select existing and new numerical solution procedures for loosely coupled analysis using FEM.
- To identify industrial problems where loosely coupled analysis is needed.

Candidate contributors to the Workshop are:

- Developers of FEM software for coupled problems and also developers of tools for coupling together specific existing software tools for each of the phenomena.
- Engineers working in multidisciplinary problems.
- Experimentalists contributing examples and data for validation of multidisciplinary analysis codes.

Workshop Chairman

If you would like to make a presentation or contribute to this workshop, please contact

Prof. Eugenio Onate

Tel: +34-932057016

Fax: +34-934016517

E-mail: onate@cimne.upc.es

Deadline for receiving a ½ page abstracts: 31st May 2002

FENET TECHNOLOGY WORKSHOPS

Durability and Life Extension (DLE):

FE Issues Related to Structural Integrity (Fracture, Fatigue, Creep)

The first two workshops on the FENET technology theme of Durability and Life Extension have identified several topics related to structural integrity which are common to several industry sectors. This workshop will focus on the FE analysis of fracture, fatigue and creep problems, and will identify further workshop topics on the theme of structural integrity.

The main objectives of this workshop are:

- To provide an overview of the current state of FE technology in applications related to structural integrity, particularly in fracture, fatigue and creep.
- To provide a discussion forum to identify the need for FE benchmarks in structural integrity
- To identify specialist workshop topics in structural integrity

Invitation

Presentations are invited on topics related to the main theme of FE analysis of structural integrity problems (fracture, fatigue and creep). In particular, presentations identifying difficulties in FE analysis, benchmarks and case studies are welcome.

Workshop Chairman

If you would like to make a presentation or contribute to this workshop, please contact

Prof. A.A. Becker

Tel: +44 (0) 115 951 3791

Fax: +44 (0) 115 951 3800

E-mail: a.a.becker@nottingham.ac.uk

Deadline for receiving abstracts: 25th May 2002

FENET TECHNOLOGY WORKSHOPS

Product and System Optimization (PSO):

The Use of Evolutionary Algorithms

The specific technology we are going to look at in depth is the use of Evolutionary Algorithms in the context of Product and System Optimization. The plan has been to invite companies who offer this technology or who work with it, each to present their view in the context of a round-table in order to target the following objectives:

- A general illustration of Evolutionary Algorithms applied to Product and System Optimization.
- The acquisition of requirements and contribution for the preparation of "best practice" document.
- Suggestion from the company/organization which can be regarded as some form of validation that could be adopted as a "benchmark" situation.

Preliminary agenda for Thursday, 13th of June 2002

- 14:00 Introductions and outline of workshop
- 14:10 **Survey of Evolutionary Algorithms**
Professor Carlo Poloni, University of Trieste
- 14:30 **Round Table on: "when and how" Evolutionary algorithms should be used**
- 17:00 **Session summary**

Preliminary agenda for Friday, 14th June 2002

- 08:30 **Report on Copenhagen meeting**
Professor Carlo Poloni, University of Trieste
- 09:00 **Requirements capture for "best practice" guidelines in Evolutionary Algorithms**
- 10:40 **Selection of validation benchmarks**
- 11:50 Conclusion

Workshop Chairman

If you would like to make a presentation or contribute to this workshop, please contact

Prof. Grant Steven

Tel: +44 (0) 191 374 3935
Fax: +44 (0) 191 374 2550
E-mail: grant.steven@durham.ac.uk

Prof. Carlo Poloni

Tel: +39 0406763808
Fax: +39 0406763812
E-mail: poloni@univ.trieste.it

Deadline for receiving abstracts: 31st May 2002

FENET TECHNOLOGY WORKSHOPS

Education & Dissemination (E&D):

A Proposed User Survey and Possible Approaches to Reducing Barriers to the Effective Use of FEA in Industry

Following on from the Copenhagen workshop, where the various barriers to the effective use of finite element analysis were identified and discussed, this second workshop will consider methods of reducing some of these barriers.

It was agreed at the Copenhagen workshop that a questionnaire be prepared to enable the views of a much wider representative section of users to be established, given the key importance of this issue to the FENET community. The design of a web-based questionnaire will be discussed and it is anticipated that a preliminary survey of the views of FENET members, using the questionnaire, will be available for examination.

Topics examined during the workshops will be wide-ranging and will include:

- a review of some recent software developments to provide new functionality, improved ease of use, support for casual users and designers
- training initiatives to improve uptake of analysis tools, including web-based initiatives

It was clear from the Copenhagen meeting that two issues in particular present barriers across a number of business sectors:

- the integration of the analysis and simulation function into the wider business enterprise
- materials modelling and data

A preliminary examination of these issues will be made, although it is likely that both will form the basis of subsequent workshops.

Workshop Chairman

If you would like to make a presentation or contribute to this workshop, please contact

Dr. Jim Wood

Tel: +44 (0) 1505 614593

Fax: +44 (0) 1505 614593

E-mail: jwood@mecheng.strath.ac.uk

TRAVEL INFORMATION

Zurich, Switzerland

Zürich is conveniently located at the heart of Europe. Nestling beside Lake Zürich with stunning views of the Swiss Alps, this exciting city is just 10 minutes away from its international airport. In Zürich everything is that bit smaller - but with so many things to do, this simply means you have all the more time for an unforgettable visit.

information:
www.zurichtourism.ch

Zurich by plane

Regular scheduled flights from every continent and most countries and major cities of the world land at Zürich's international airport. A train service every quarter of an hour whisks passengers to the city center in just ten minutes; the taxi journey takes about twenty minutes.

information:
www.uniqueairport.com

Zurich by train...

Over a thousand trains halt daily at Zürich's centrally located main railway station. Direct and frequent services to all the large Swiss cities and major European destinations guarantee a pleasant journey.



Zurich by car...

A well developed motorway network links Zürich with other large Swiss cities and neighboring countries, ensuring shortest possible journey times.

How to find Geroldswil

By plane (Zurich Kloten)

Taxi (about 30 min.)

- Taxi to Geroldswil costs about 65 SFr.

Public transport from Zurich Airport (about 50 min.)

- Train „S7“ to Zurich Hardtbrücke
- Train „S12“ or „S3“ direction Dietikon/Baden (12 min.)
- Get off the train in Dietikon
- Bus „301“ or „304“ opposite the train station (9 min.)
- Get off the bus in Geroldswil centre

By car

Coming from Zurich or Basel

- Highway N1, exit Dietikon/Spreitenbach
- Direction Oetwil an der Limmat
- Centre of Geroldswil on the left hand side

Coming from the east of Switzerland

- Highway N1, Nordring Bern/Basel
- Exit Weiningen
- Centre of Geroldswil on the righthand side

By train (Zurich main station)

Public means of transport from Zurich main train station (about 30 min.)

- Train „S12“ or „S3“ direction Dietikon/Baden (12 min.)
- Get off the train in Dietikon
- Bus „301“ or „304“ opposite the train station (9 min.)
- Get off the bus in Geroldswil centre

More information about Geroldswil:
www.geroldswil.ch

Seminar and workshop location: Hostellerie Geroldswil

Am Dorfplatz • CH-8954 Switzerland
phone +41 - (0) 1 - 747 87 87 • fax +41 - (0) 1 - 747 88 88
e-mail: info@hostellerie-geroldswil.ch
Internet: www.hostellerie-geroldswil.ch



You will find the Hostellerie right opposite the bus station. In the same building where also the Kantonbank of Zurich is located.

ACCOMODATION INFORMATION

Hotels in Geroldswil

Please book your hotel room by yourself as soon as possible. We have optioned rooms for attendees until 20th May 2002 in the Hostellerie Geroldswil and Hotel Sommerau Ticini Dietikon (shuttle service). We recommend to stay in one of the two hotels.

Please use the keyword „NAFEMS/FENET“ when you book your room.



1) Hostellerie Geroldswil (seminar and workshop location)

Travel information see page 10!

single room:

125 SFr. (about 85,- Euro) / night incl. breakfast

double room:

180 SFr. (about 122,- Euro) / night incl. breakfast per room

Hostellerie Geroldswil

Am Dorfplatz • CH-8954 Switzerland

phone +41 - (0) 1 - 747 87 87 • fax +41 - (0) 1 - 747 88 88

e-mail: info@hostellerie-geroldswil.ch

Internet: www.hostellerie-geroldswil.ch



2) Hotel Sommerau Ticini Dietikon

Please contact via Hostellerie Geroldswil

single room:

125 SFr. (about 85,- Euro) / night incl. breakfast

double room:

180 SFr. (about 122,- Euro) / night incl. breakfast per room

(recommended for attendees travelling by car)

Hotel Restaurant Sommerau Ticini Dietikon

Zürcherstrasse 72 • CH-8953 Dietikon

How to find Hotel Sommerau:

By plane (Zurich Kloten) / By train

Please use travel information for Hostellerie Geroldswil.

But leave the train at Dietikon — from the trainstation, turn

left and follow the „Poststrasse“ to the highway

„Zürcherstrasse“ (5-minute-walk)

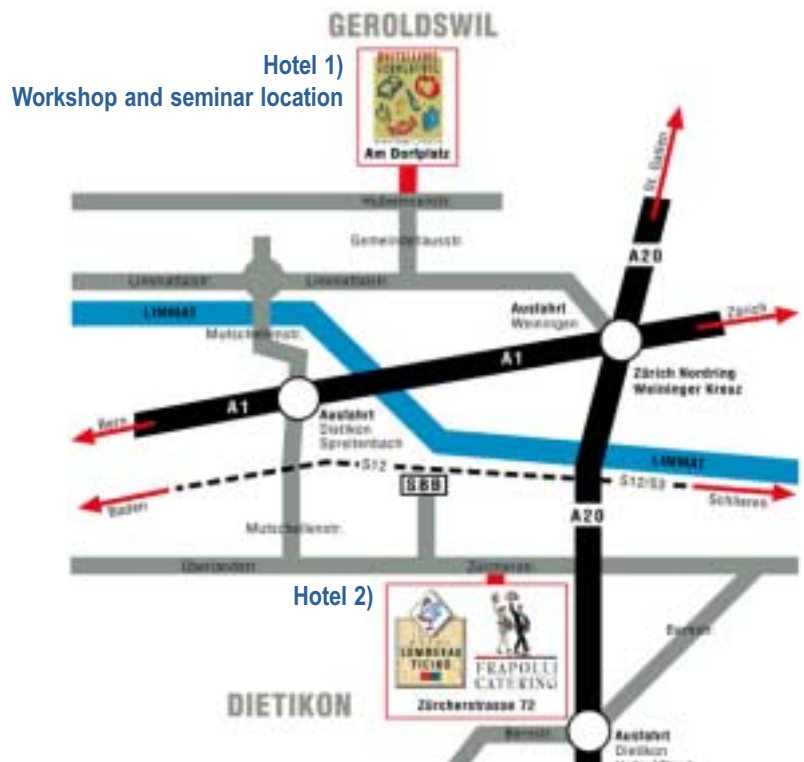
By car

Highway Bern/Basel — direction Baden — take exit

Urdorf Nord — follow the sign Dietikon-Centre — after

400m, you will find the Hotel lefthand side — you can use

the garage at no charge



For other hotels in or around Geroldswil please contact the Hostellerie Geroldswil.

SEMINAR REGISTRATION FORM

I wish to attend the NAFEMS/FENET seminar "Web Based Training for Engineering Analysis"
Wednesday 12th June 2002, Zurich, Switzerland

- NAFEMS & FENET Members** Free *
- Non-Member** £75 Euro 125

(VAT at 17.5% should be added for all Delegates)
Alternatively you may register online at www.nafems.org
* Subject to availability of free member place credits.

Personal details

Title _____ Initials _____ Family Name _____

Organisation _____

Address _____

Tel. No. _____ Fax. No. _____

e-mail: _____

Payment Details (if applicable)

Credit Card Amex Mastercard Visa

Authorized name _____

Card Number

Expiry Date _____ Company P O. _____

Signature _____

Please return to:
Anne Creechan
NAFEMS Ltd, Whitworth Building, Scottish Enterprise Technology Park, East Kilbride,
G75 0QD, United Kingdom
Tel: +44 (0) 13 55 22 56 88 E-mail: anne@nafems.org Fax: +44 (0) 13 55 24 91 42 www.nafems.org

WORKSHOP REGISTRATION FORM

I would like to register for the FENET Workshops
 Thursday, 13th June and Friday, 14th June 2002 in Geroldswil/Zurich, Switzerland

Attendee Costs: 235,- Euro

I will attend the following workshops:

Thursday, 13th June

AM

- Multi Physics & Analysis
- Durability & Life Extension

PM

- Multi Physics & Analysis
- Durability & Life Extension
- Product & System Opt.

Friday, 14th June

AM

- Multi Physics & Analysis
- Durability & Life Extension
- Product & System Opt.
- Education & Dissemination

PM

- Education & Dissemination

Payment Details

I will pay

after invoice

Cash

Credit Card (please fill in below)

Credit Card

Mastercard

Visa

No other Credit Cards can be accepted!

Authorized name _____

Card Number

Expiry Date _____ Company P O. _____

Signature _____

I am interested in the FENET project (please specify your RTD Area / Industry Sector)

RTD Area: Durability & Life Extension Product & System Opt. Multi Physics & Analysis Education & Dissemination

Industry Sector: Land Transport Aerospace Civil Construction Marine and Offshore Consumer Goods

Biomedical Process and Manufacturing Power and Pressure Systems

Personal details

Title _____ Name _____

Company _____

Address _____

Country _____

Tel. No. _____ Fax. No. _____

e-mail: _____ Date, Signature _____