

# 22<sup>e</sup> Journées des Matériaux 2003

## **"Tailored Nanoparticles: The challenge in Diagnostics and Therapeutics"**

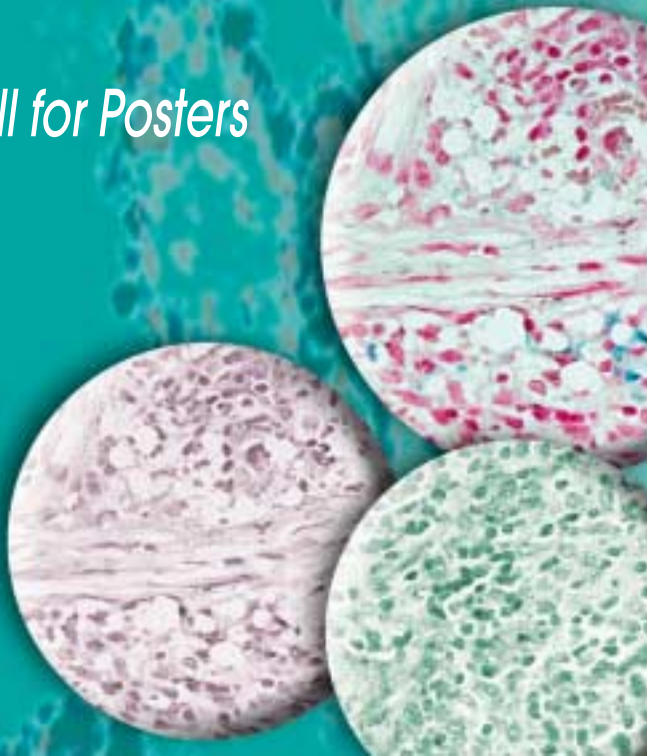
### 16 and 17 October 2003

**Swiss Federal Institute of Technology Lausanne (EPFL)  
Institute of Materials (IMX)**

### *Program and Call for Posters*

## **SVMT**

Schweizerischer Verband für Materialwissenschaft und Technologie  
Association Suisse pour la Science et la Technologie des Matériaux  
Associazione Svizzera per la Scienza e Tecnologia dei Materiali  
Swiss Association for Materials Science and Technology



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Inorganic and organic nanoparticles having sizes between a few nanometers up to about 500 nm are of increasing interest in diagnostics and therapeutics. Nanotechnology has even created new ways of synthesis and functionalisation, further research and development in tailoring and derivatisation of nanoparticles for special applications is still under investigation. Especially the use of nanoparticles in life-science as an effective therapeutic treatment (e.g. drug carrier, hyperthermia), in functional genomics and proteomics (e.g. high throughput analysis of proteins DNAs, SNPs etc.), transfection of cells needs individual synthesis, coating, functionalisation and derivatisation of the particles. Only tailor made particle systems are able to fulfill the various needs of in-vitro and especially in-vivo applications.

This conference is organised to give an overview of the research in small particles at the EPFL. It is the aim to show the results of a collaboration of the EPFL with Swiss and European Institutes working in the field of immunology, clinical investigations, molecular genetics, pharmaceuticals, physics and radiology. The conference should give a platform to improve the discussion between materials scientists and other research groups in life science and biotechnology.

**Prof. Dr. Heinrich Hofmann**  
Laboratory of Powder Technology  
EPFL-IMX

**Dr. Margarethe Hofmann**  
Swiss Association for Materials  
Science and Technology

**Cover page:** Superparamagnetic iron oxid particles in the periarticular tissue from a stifle joint of a sheep...

**Courtesy:** Bernhardt Schoepf, Brigitte von Rechenberg, MSRU, Equine Hospital, University of Zurich, Zurich, CH

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# Programme Thursday, 16 October 2003

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- 10h00** Welcome
- 10h15** *Inorganic nanoparticles for application in life science*  
**H. Hofmann**, Swiss Federal Institute of Technology Lausanne, EPFL, Institute of Materials, Laboratory of Powder Technology, Lausanne, Switzerland
- 10h45** *Polymeric nanoparticles passing the blood-brain barrier*  
**Jörg Kreuter**, Johann Wolfgang Goethe-University, Institute for Pharmaceutical Technology, Frankfurt am Main, Germany
- 11h15** *Targeting nanoparticles to activated endothelial cells*  
**Jan Holgersson**, Karolinska Institutet Huddinge University Hospital, Division of Clinical Immunology, Stockholm, Sweden
- 11h45** *Oral Postershow*
- 12h15** Postersession and Lunch-Bufferet
- 13h45** *In-vivo experiments with superparamagnetic particles in sheeps*  
**Brigitte von Rechenberg**, University of Zurich, Equine Hospital, MSRU, Zurich, Switzerland
- 14h15** *Targeting of superparamagnetic nanoparticles for cellular uptake by cancer cells*  
**Lucienne Juillerat-Jeanneret**, University of Lausanne, Institute of Pathology, CHUV, and Alke Petri, Swiss Federal Institute of Technology Lausanne, EPFL, Institute of Materials, Laboratory of Powder Technology, Lausanne, Switzerland
- 14h45** *Polymers and dendrimers as drug carriers: Nanosized medicines in action*  
**Ruth Duncan**, Welsh School of Pharmacy, Cardiff University, United Kingdom
- 15h15** Coffee Break and Poster
- 15h45** *Amphiphilic dendrimers for gene transfection: an AFM study*  
**Myriam Losson**, CSEM S.A. Nanoscale Technology & Biochemical Sensors, Neuchâtel, Switzerland
- 16h15** *Dendritic polymers*  
**Christopher J.G. Plummer**, Swiss Federal Institute of Technology Lausanne, EPFL, Institute of Materials, Laboratory Polymers, Lausanne, Switzerland
- 16h45** Distribution of Prizes and Aperitif
- 19h00** Conference Dinner
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# Programme Friday, 17 October 2003

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- 9h15**     ***Development of superparamagnetic particles for hyperthermia***  
**Mathieu Chastellain**, Swiss Federal Institute of Technology Lausanne, EPFL, Institute of Materials, Laboratory of Powder Technology, and Daniel A. Rüfenacht, Neuroradiologie/NEUCLID, University Hospital of Geneva, HUG, Geneva, Switzerland
- 9h45**     ***High throughput DNA and Protein separation***  
**Richard Reinhardt**, Max-Planck-Institute for Molecular Genetics, Berlin-Dahlem, Germany
- 10h15**     Coffee Break and Poster
- 10h45**     ***Making magnets by bacteria: Production and applications of biogenic magnetic nanoparticles***  
**Dirk Schüler**, Max-Planck-Institute for Marine Microbiology, Bremen, Germany
- 11h15**     ***Non invasive transport of charged particles***  
**Martin Koch**, Technical University of Munich, Institute of Medical Electronic, Munich, Germany
- 11h45**     ***Development of antibody modified nanoparticles for cell type specific targeting***  
**Klaus Langer**, Johann Wolfgang Goethe-University, Institute for Pharmaceutical Technology, Bio-Centre, Frankfurt am Main, Germany
- 12h15**     Postersession and Lunch-Buffer
- 13h45**     ***Bio-inspired self-assembly of uniform "soft" nanoparticles***  
**Harm-Anton Klok**, Swiss Federal Institute of Technology Lausanne, EPFL, Institute of Materials, Laboratory of Polymers, Lausanne, Switzerland
- 14h15**     ***New fluorescent particles for bioassays***  
**Yvonne Axmann and Alke Petri**, Swiss Federal Institute of Technology Lausanne, EPFL, Institute of Materials, Laboratory of Powder Technology, Lausanne, Switzerland
- 14h45**     ***Nanocrystal-mediated functional imaging of cellular and vascular targets for early detection of age related macular degeneration, cancer as well as improving therapy and drug screening***  
**Hubert van den Bergh**, Swiss Federal Institute of Technology Lausanne (EPFL), Institute of Environmental Science and Technology, Air and Soil Pollution Laboratory, Lausanne, Switzerland
- 15h15**     Coffee Break
- 15h45**     ***Optical properties of single fluorescent nanoparticles – biopolymer complexes***  
**Jean-Manuel Segura**, Swiss Federal Institute of Technology Lausanne, EPFL, Laboratory of Physical Chemistry of Polymers and Membranes, Lausanne, Switzerland
- 16h15**     ***Nanoparticles for Biology: cell and biomimetic objects characterization and Imaging at the nanometric scale with functionalised particles by Digital Holographic Microscopy***  
**Christian Depeursinge**, Swiss Federal Institute of Technology Lausanne, EPFL, Institute of Applied Optics (IOA), Lausanne, Switzerland
- 16h45**     Concluding Remarks
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# General Information

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## Conference Location

Swiss Federal Institute of Technology Lausanne (EPFL), Ecublens,  
CH-1015 Lausanne, Switzerland  
Centre Est, Auditoire 1 **(CE1)**

We strongly recommend the use of public transport. Only a small number of parking slots will be available. To get from Lausanne Main Railway Station to EPFL first take the METRO to FLON, get out at FLON, change to METRO OUEST (TSOL) and get out at the stop EPFL. At EPFL, the Auditoire 1 **(CE1)** is situated in the CE Building (Centre Est). Please consult the location maps shown below (also available at <http://www.epfl.ch/plans>)



## Contact:

**Petra Passuello**

EPFL-IMX-LTP

MX-D Ecublens, 1015 Lausanne

Conference Phone: +41 21 693 5838

Conference Fax: +41 21 693 3089

## Conference Dinner

The conference dinner will be held at the Olympic Museum, a restaurant with a splendid view of the lake and the alps (panoramic terrace).

Address:

Olympic Museum Lausanne

Quai d'Ouchy 1

1000 Lausanne 19

Switzerland

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# Posters and industrial presentations

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Posters (size A0, vertical) are welcome. Titles can be submitted until September 27th, 2003 to Petra Passuello using the registration form.

Industrial presentations are welcome to be presented in parallel and during the coffee breaks. A few exhibition tables are available for this purpose. Please contact Petra Passuello.

## Publication:

Extended abstracts of oral and poster presentations will be published in a conference proceeding.

## Registration

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### Registration Fees

The registration fee includes the participation in the conference, the conference documentation including the abstract booklet with all oral and poster contributions, 2 lunches and coffee breaks.

### Registration

Participants	180.–
Participants from SVMT/EPFL	150.–
Payment cash at the conference	200.–
Industry with exhibition	400.–
Dinner	70.–

Undergraduat and doctoral students are free of charge but lunch (SFr. 30.–) has to be paid separately.

### Payment

All payments must be made in SFr not later than 3rd October, 2003 to the following bank account:

**Banque Cantonale Vaudoise**

**CCP 10-725-4**

**1002 Lausanne**

**en faveur de: Z 0905.27.00 "Journées des matériaux"**

### Cancellation

Refund of fees, less SFr 30.– administration charge, on notification before October 3rd, 2003. After this date, fees will no longer be refunded.

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# Registration Form "Journées des Matériaux 2003", EPF Lausanne

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Please send this form by mail, fax or e-mail to the following address before  
October 3rd, 2003:

Petra Passuello, EPFL-IMX-LTP, MX-D Ecublens, CH-1015 Lausanne

Fax: +41 21 693 30 89, e-mail: [petra.passuello@epfl.ch](mailto:petra.passuello@epfl.ch)

Title: \_\_\_\_\_

First Name: \_\_\_\_\_

Last Name: \_\_\_\_\_

Institute/Company \_\_\_\_\_  
\_\_\_\_\_

Department: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Country/Zip Code: \_\_\_\_\_

City: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

e-mail: \_\_\_\_\_

Registration Fee \_\_\_\_\_

SFr

Conference Dinner \_\_\_\_\_

SFr

Lunch 16.10.03 (undergraduat/doctoral students) SFr \_\_\_\_\_

Lunch 17.10.03 (undergraduat/doctoral students) SFr \_\_\_\_\_

Exhibition yes

Poster: yes

Poster Title (until September 27th, 2003): \_\_\_\_\_  
\_\_\_\_\_

Poster Authors and Affiliation: \_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

*For undergraduat and doctoral students: please submit copy of your student card.*

**SVMT  
c/o Petra Passuello  
EPFL-IMX-LTP  
MX-D Ecublens  
CH- 1015 Lausanne**