

School for advanced materials characterization

School overview

Internationally acknowledged European research centers will host complementary lectures for 5 days providing a comprehensive overview of techniques for material characterization. The school will offer a unique view of the characterization landscape in Europe, with particular attention to the energy, health and information technology application fields.

Audience targeted by the school

Professionals, engineers, researchers from industry, facing material characterization issues

Entry requirements

No specific requirements

Competences covered

- Acquire a general overview of nanoscale characterization techniques and related roadmap
- Focus on methodology for the study of surfaces, interfaces, nanomaterials and nanostructures
- Describe the potential and limitations of the various techniques
- Practicals based on the general overview and on the topics focus through case studies

Duration 5 days
Locations INSTN/CEA-Grenoble, France
 Fraunhofer IKTS Dresden, Germany

Groups limited to 12 (on each location)

Contacts
 Chantal Tardif – chantal.tardif@cea.fr (Grenoble)
 Simon Schlipf – simon.schlipf@ikts.fraunhofer.de (Dresden)

Course code (INSTN) : 64B

Please contact us for more information on this course.



Course content

The course covers:

- 3 general characterization topics:
 - Chemical and morphological properties
 - Electrical and morphological properties
 - Structural and morphological properties
- 3 methodology axes:
 - Surface analysis
 - 3D Characterization
 - Characterization by Large Scale Facilities



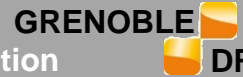
Main outcomes of the school

Theoretical lectures will be paired to practical works on real case studies that will highlight the capabilities and complementarities of the characterization techniques.

The lectures will be given and broadcasted from 2 sites renowned for their characterization expertise and their state-of-the-art facilities.



atoms light ions electrons neutrons spectroscopy



School for advanced materials characterization

Morning

Afternoon - GRENOBLE

Monday
October, 14

Tuesday
October, 15

Wednesday
October, 16

Thursday
October, 17

Friday
October, 18

Introduction of the school
A. Chabli – E. Zschech
(Broadcasted on the two sites)

EMCC Road map
E. Zschech – Fraunhofer IKTS
Dresden
(Broadcasted on the two sites)

Overview of characterization
techniques (GEN 1-2-3)
A. Chabli - CEA Grenoble
(Broadcasted on the two sites)

Surface
Analysis
(Topic1)

A. Benayad
-
CEA Grenoble

(Broadcasted on
the two sites)

3D
Characterization
(Topic 2)

E. Zschech
-
Fraunhofer IKTS
Dresden

Broadcasted on
the two sites)

Characterization
by Large Scale
Facilities
(Topic 3)

E. Capria
Et
C. Boudou
-
ESRF/ILL
Grenoble

Broadcasted on
the two sites)

Case studies
summary and
knowledge sharing

A. Chabli
-
CEA Grenoble

A. Clausner and
E. Zschech
-
Fraunhofer IKTS
Dresden

(Broadcasted on
the two sites)

Lunch (and transfer)

Lunch and
closing time

Large Scale Facilities
ESRF/ILL - Grenoble

Characterization
Visits by groups

Characterization
Visits by groups

Characterization
Visits by groups

- Electron microscopy and sample preparation
- Surface analysis and ion beam analysis
- Optical and X-Ray characterization

Case study by
Work Groups
GEN# Topic#
Topic#

Case study by
Work Groups
GEN# Topic#
Topic#

Case study by
Work Groups
GEN# Topic#
Topic#

Festive event

Wrap-up per WG

Gen1: Chemical and morphological properties
Gen2: Electrical and morphological properties
Gen3: Structural and morphological properties

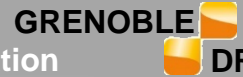
Topic1: Surface analysis
Topic2: 3D Characterization
Topic3: Characterization by Large Scale Facilities

Potential Case study works from the two sites:

- Nanoparticles and nanocomposite materials
- High k Metal gate stack for CMOS
- Interconnections for CMOS
- Batteries
- PV Cells
- Etc.



atoms light ions electrons neutrons spectroscopy



School for advanced materials characterization

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Klotzsche

WBS

Klotzsche

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the two sites)

Lunch (and transfer)

Lunch and
closing time

Helmoltz Zentrum
Dresden Rossendorf

Lab visits

Case study by
Work Groups

Group
1

Group
2

Case study by
Work Groups

Group
1

Group
2

Wrap-up /
Lab visits /
Q&A

Wrap-up /
Lab visits /
Q&A

Festive event

Wrap-up per WG

Gen1: Chemical and morphological properties
Gen2: Electrical and morphological properties
Gen3: Structural and morphological properties

Topic1: Surface analysis
Topic2: 3D Characterization
Topic3: Characterization by Large Scale Facilities

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PRE-REGISTRATION FORM

School for advanced materials characterization

INSTN, Grenoble, France & IKTS, Dresden, Germany

October 14-18, 2019

Registration deadline: September 25, 2019

Ms/Mr: [] - Family Name: []
First Name: []
Company / Institution and billing address: []
[]
City code: [] City: [] Country: []
Phone Number (international): [] Mobile: []
E-mail: []
Position / Job-Title: []

Date & place of birth (Month/Day/Year): []
Nationality: [] Citizen site of birth if different: []
Home address: []
[]
Passport number: []
Date of issue (Month/Day/Year): []
Date of expiration (Month/Day/Year): []
Special dietary requirement: []
Additional information for the organizers: []

Registration fees: **€1910** (Includes: **attendance of the week course, materials and lunches and festive event on Monday evening**)

I want to attend the school at: Grenoble or Dresden

Please, return the signed registration form with a copy of your passport before the deadline: **September 25, 2019**, to:

- anne-sophie.bertin@cea.fr (for a registration in Grenoble)
- simon.schlipf@ikts.fraunhofer.de (for a registration in Dresden)

Date:

Signature: