



NAME: COMPETENCE CENTRE FOR MATERIALS SCIENCE AND TECHNOLOGY (CCMX)

INSTITUTIONS: EPFL, ETH ZURICH, PSI, EMPA AND CSEM

COUNTRY: SWITZERLAND

Profile :

The Competence Centre for Materials Science and Technology (CCMX) is one of several centres of excellence initiated at the national level by the ETH Board in early 2006. It aims to serve the interests of Switzerland in the field of materials science in terms of research, education and technology transfer by reinforcing ties between academia, industry and the Swiss economy.

CCMX federates the strengths of four ETH Domain institutions (EPFL, ETH Zurich, Empa, PSI) and of CSEM, and involves the active participation of partners from industry, from industrial associations and from Swiss universities.

At the core of the Centre's activities are ERUs – Education and Research Units – and an Analytical Platform. The ERUs offer programmes of research and education, including technology transfer, in targeted fields of activity identified together with the Swiss industry :

- surface, coatings and particles engineering (SPERU)
- materials for the life sciences (MatLife)
- materials for micro- and nanosystems (MMNS)
- metallurgy (MERU)

Closely linked to these ERUs is an Analytical Platform developing and promoting activities in nano- and microscale materials characterisation for industry and academia (NMMC).

Each ERU/platform is established in a scientific/technological domain offering substantial potential for innovation and which is capable of generating significant industrial interest and active participation. They are composed of academic laboratories and industrial partners competent in the elected domain, along with industrial associations. The laboratories belong to institutions which are either partners of the Centre. The ERUs/platform are led by directors who are leading scientists, with the autonomy to create programmes best adapted to their domain.

The Centre is headed by a Steering Committee comprising members from EPFL (chair), ETH Zurich, PSI, Empa and industry. A full team based at EPFL in Lausanne is in charge of the day-to-day running of the Centre.

Activities :

Research

The Centre co-funds research projects involving industrial partners and research institutions. CCMX concentrates on pre-competitive research and thus aims to strongly and positively influence this area in Switzerland.



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Each CCMX funded project includes at least two institutions and several industrial partners. This multi-partner project approach brings together the best competencies in specific materials science related domains from all over Switzerland.

Education and training

A wide range of continuing education is offered by CCMX. Courses, seminars and workshops are regularly organised by the ERUs and the analytical platform. Topics are chosen based on the actual needs of the targeted audiences (PhD students, engineers, scientists from industry and/or academia). These continuing education initiatives attracted nearly 400 participants from industry and academia since CCMX was launched and will continue in the coming years.

Technology and knowledge transfer

The interactions that CCMX maintains with the industry are decisive in the process of technology and knowledge transfer. By involving several institutions and several industrial partners in each project, CCMX ensures access to fundamental and applied know-how.

Companies have two options to be involved in CCMX. They can either purchase research tickets to be involved in research projects or participate in the training courses and various events organised year long.

Expertise on following materials :

- Metals and alloys
- Ceramics
- Polymers
- Composites

Current research domains concerning materials technology / Competences :

- Neo-metallurgy : New alloys, new processes and new investigation techniques
- Multi-scale, multi-phenomena modelling of metallic systems
- Medical Device Technology and Innovation
- Biosensing and Diagnostic Strategies
- Functional Particles in contact with biological fluids
- Materials technologies and design for micro- and nanosystems
- Laboratory on-a-chip
- Surface modification by coating and structuring
- Functional foams
- Characterisation of materials at the nano- and microscale

Details available in <http://www.ccmx.ch/industry/thematic-research-areas.html>

Available research infrastructure :

Large variety of equipment, for details please see www.ccmx.ch

Coordinate address : C/O Ecole Polytechnique Fédérale de Lausanne
STI - Institut des Matériaux (IMX) - Station 12
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