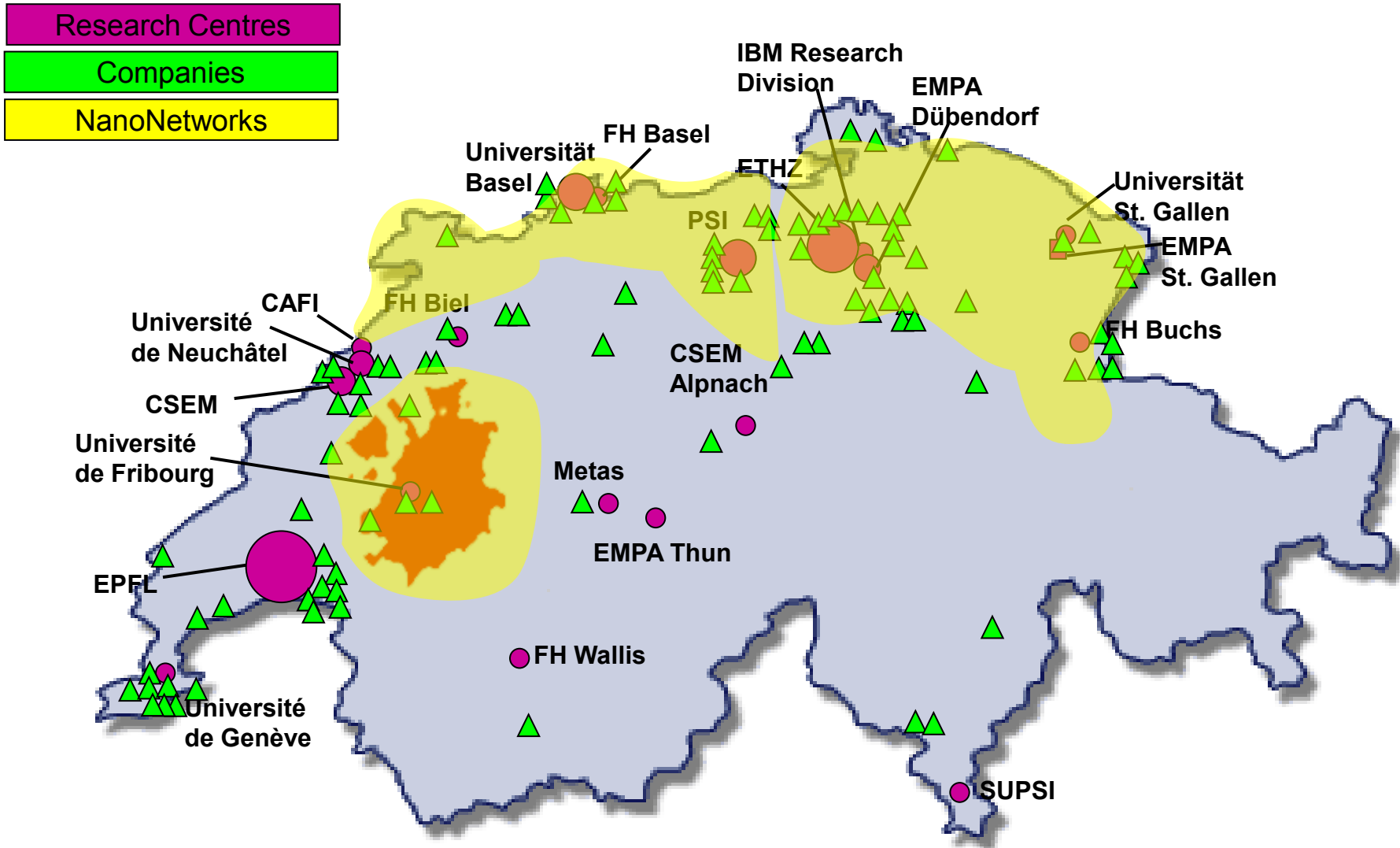




Nano-Initiatives in the region of Fribourg

Nano in Switzerland



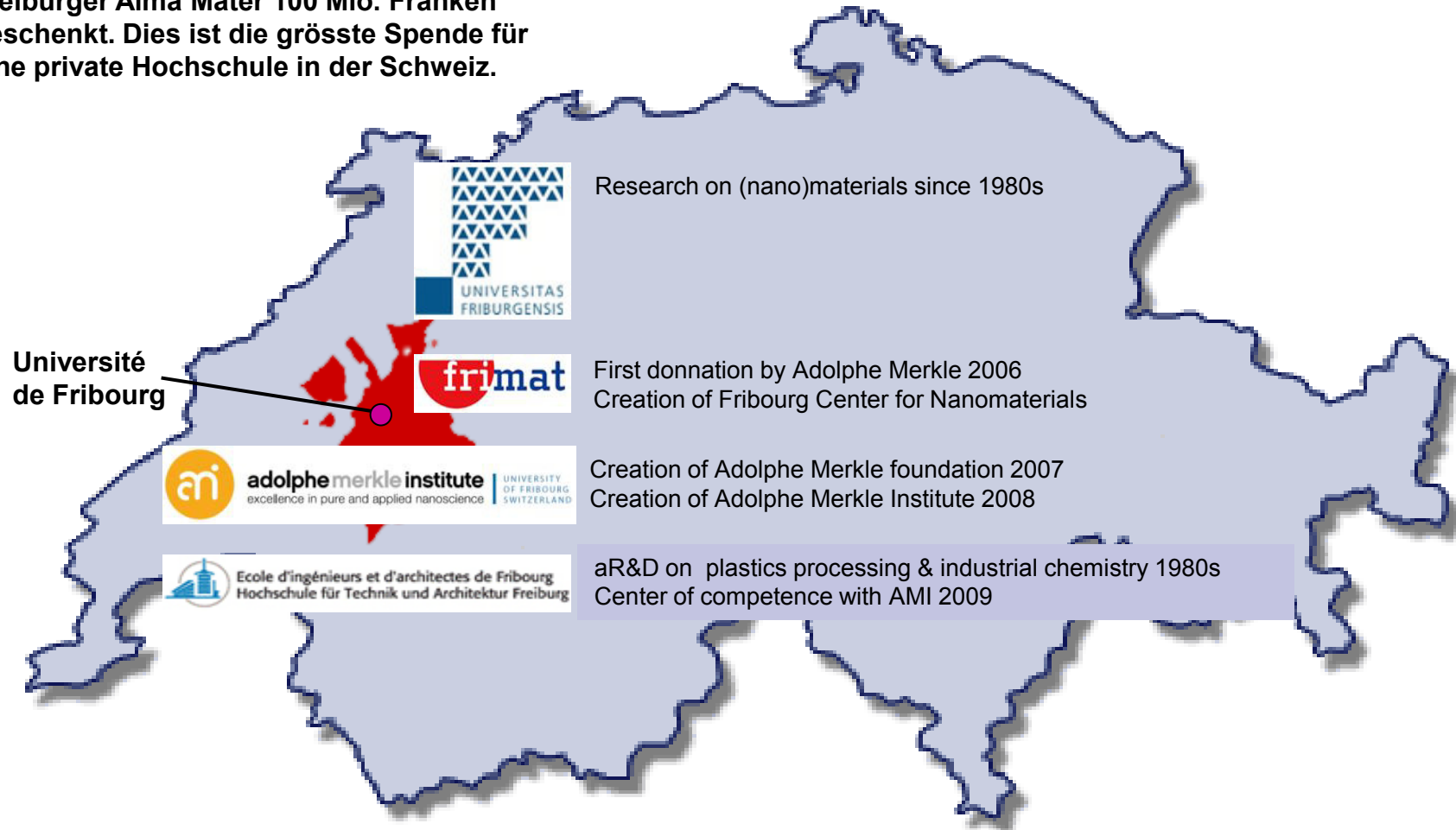
Source: Apostoloski 2004

Fribourg and Nano: Academics

Jackpot für die Universität Freiburg

28 November 2007

Der Industrielle Adolphe Merkle hat der Freiburger Alma Mater 100 Mio. Franken geschenkt. Dies ist die grösste Spende für eine private Hochschule in der Schweiz.



Fribourg and Nano: Academics

Fribourg Center for Nanomaterials

Interdisciplinary virtual research institute of the Faculty of Sciences of the University

Materials oriented research and development of new advanced functional materials

- Physics
- Chemistry
- Earth Sciences
- Medicine

Adolphe Merkle Institute

Interdisciplinary research institute for nanoscience and -technology

Fundamental and application-oriented research in soft nanomaterials



adolphe merkle institute
excellence in pure and applied nanoscience

- Softmatter Physics
- Polymer & Materials Chemistry
- Bio-Nanomaterials



Ecole d'ingénieurs et d'architectes de Fribourg
Hochschule für Technik und Architektur Freiburg

College for engineering & architecture

Research institutes for industrial technology and chemistry

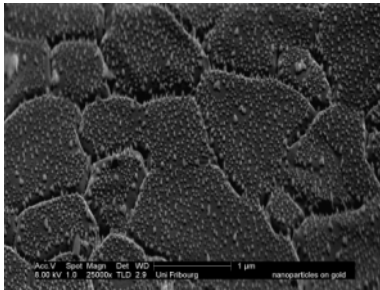
Applied research and development

- Plastics Technology
- Industrial Chemistry

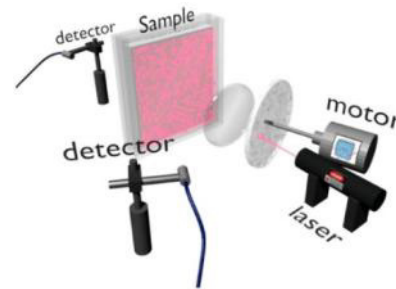
Fribourg and Nano: Academics



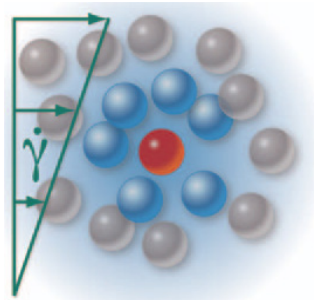
Fribourg Center for Nanomaterials



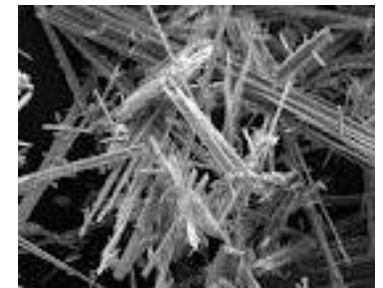
Anti-microbial biomaterials and surfaces



Characterization of the structure and dynamics of particles and particle assemblies by light scattering



Modeling of colloidal dispersions under shear flow

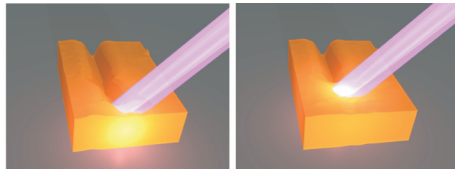


Use of minerals in nanotechnology applications and the health aspects of fine grained and fibrous minerals

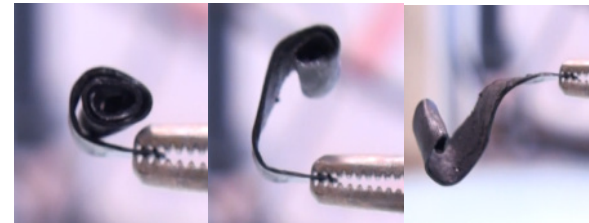
Fribourg and Nano: Academics



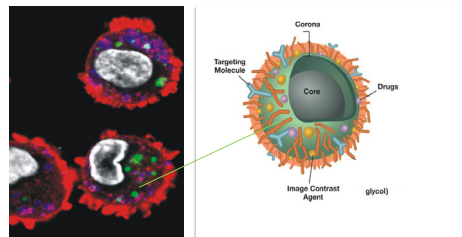
Adolphe Merkle Institute



Self-healing polymer coatings

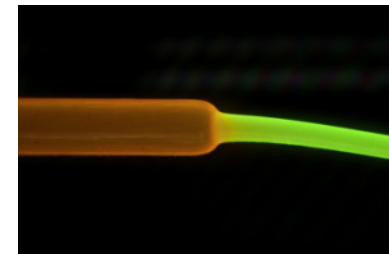


Magnetically induced shape-memory materials



Adapted from Mc Neil SE. J Leuk Biol 2005

Biomedical nanoparticles as immune -modulators

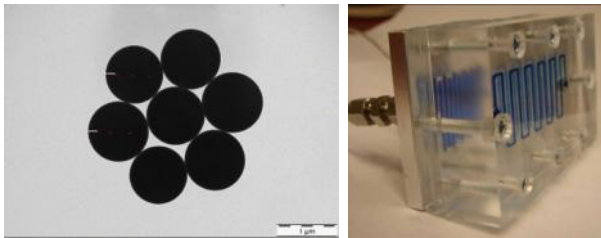


Stimuli-Responsive Photoluminescent/Chromogenic Polymer Blends

Fribourg and Nano: Academics



College for engineering & architecture



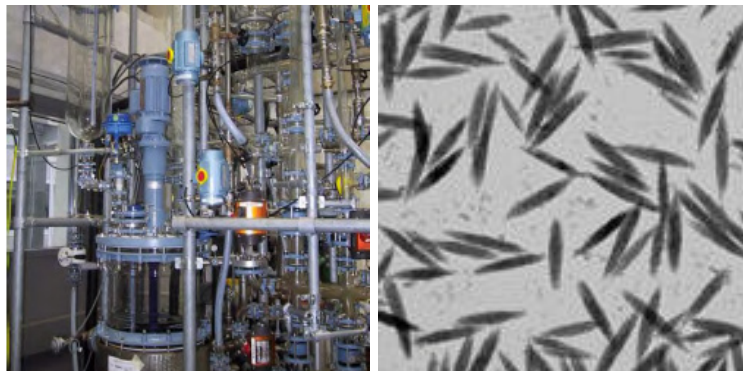
Surface-modified silica beads in continuous flow micro reactor



Surface treatments of injection molding equipment (lotus effect)



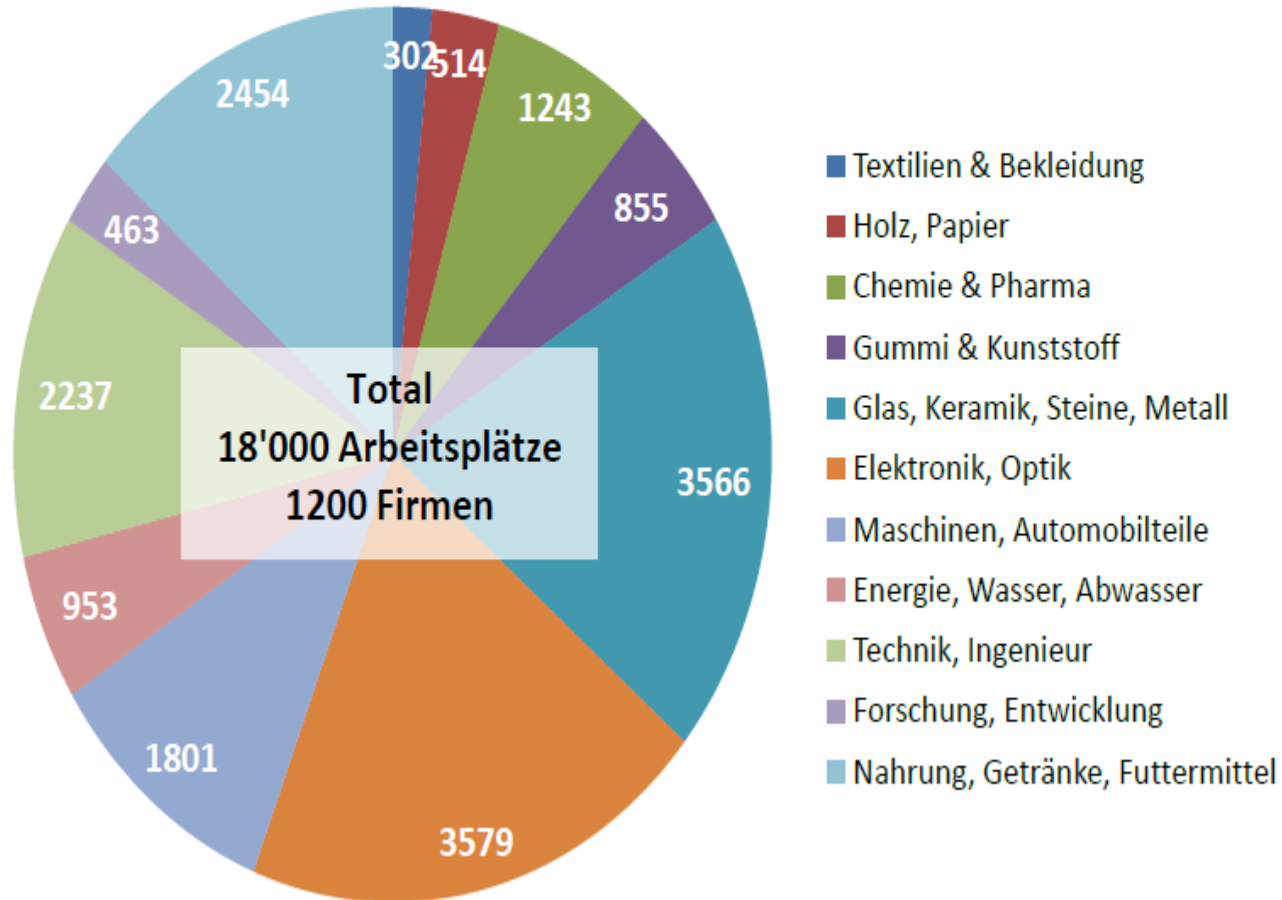
Nanotribology and -mechanics



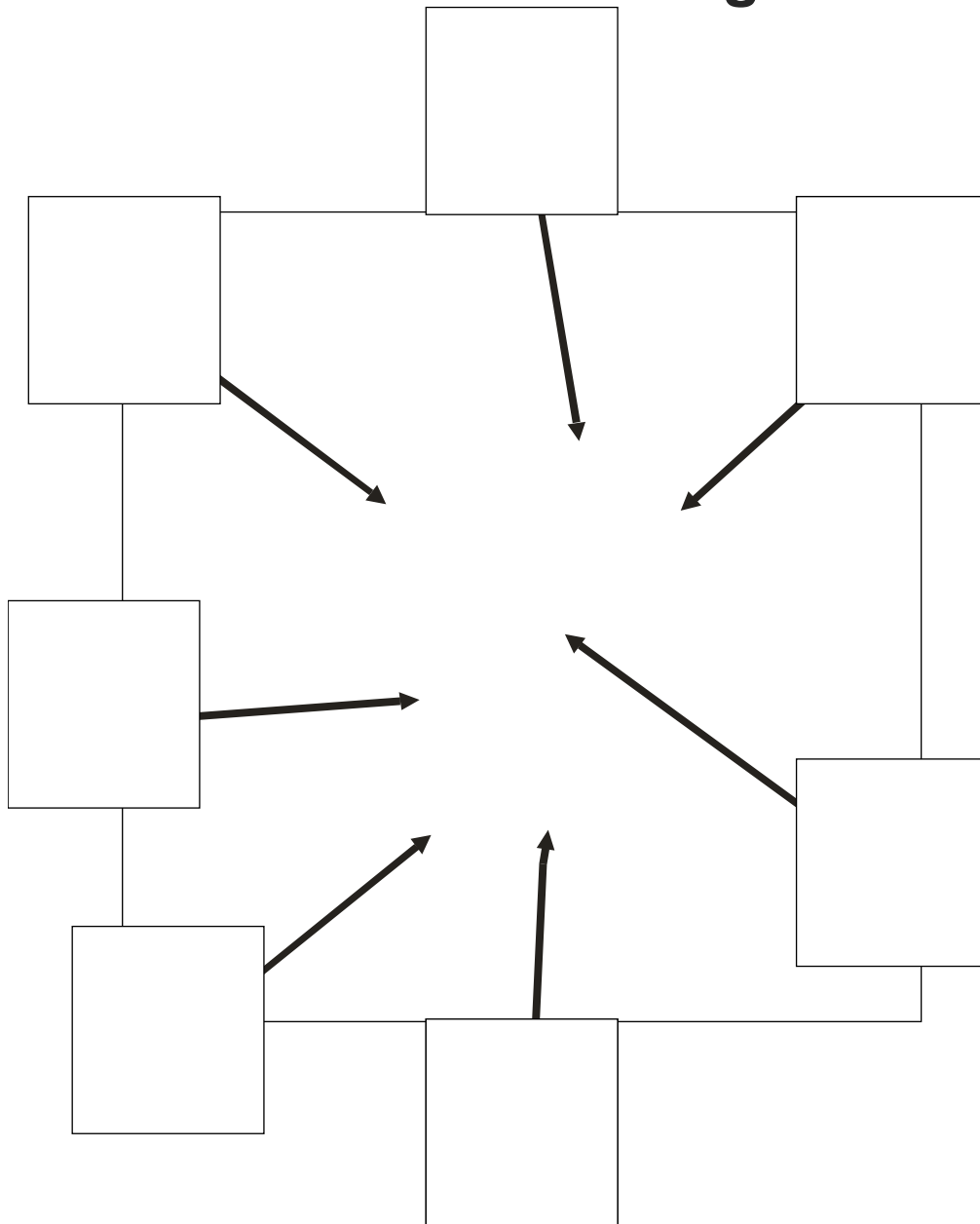
Synthesis of anisotropic magnetic nanoparticles (scale-up)

Fribourg and Nano: Industry

Branchen im Kanton Freiburg mit exzellentem oder gutem Potential von der Nanotechnologie zu profitieren (mit Anzahl Arbeitsplätzen)



Fribourg and Nano: Industry



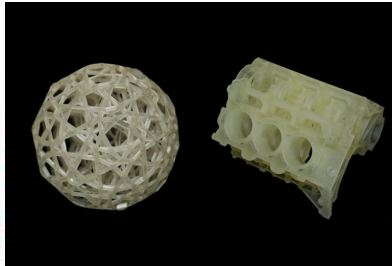
- Industry sectors with excellent/ good potential
- More than 10 employees
- Own R&D
- At least 1 employee with academic training
- Turnover >1.5 Mio. CHF
- Export >50%
- Open for innovation

27A: very good potential

31 B: good potential

68 C: possible potential

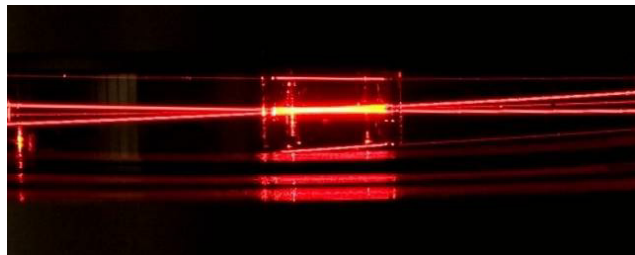
Fribourg and Nano: Industry



Mechanically reinforced polymer composite materials for rapid prototyping



Milling equipment for the production of nanoparticles



Accurate particle characterization ranging from dilute to the extremely turbid systems based on light scattering techniques

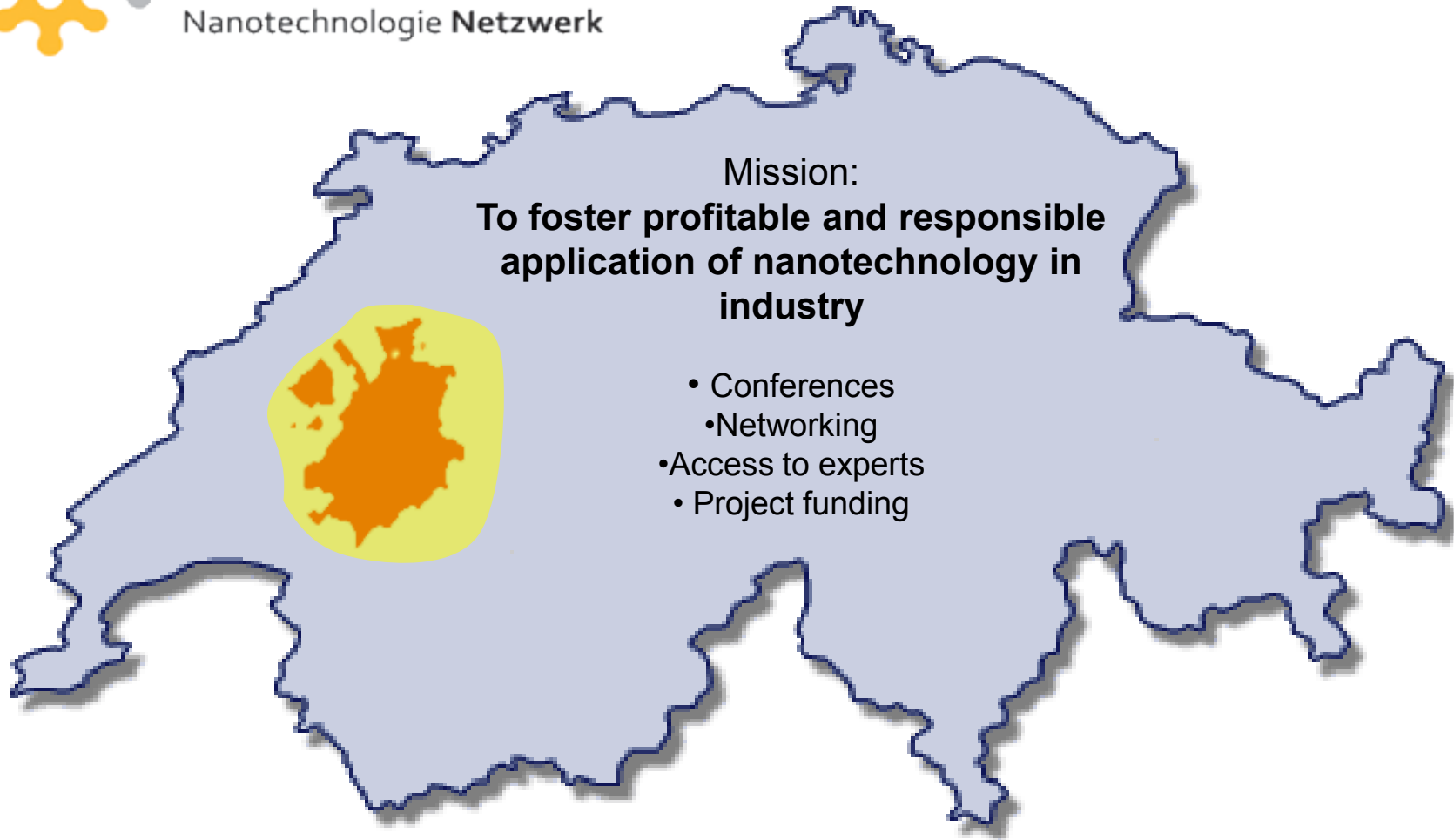


Nanoporous coatings for ink-jet photo prints

Fribourg and Nano: Networks



Réseau nanotechnologies
Nanotechnologie Netzwerk



Mission:
**To foster profitable and responsible
application of nanotechnology in
industry**

- Conferences
- Networking
- Access to experts
- Project funding

Fribourg and Nano: Networks

2009-2011

Conferences with >370 participants



Verarbeitung von (Nano)-Partikelhaltigen
Giesslösungen durch Flüssigbeschichtungsverfahren

Workshop 14. Dezember 2010

Micronarc Industrial Forum

*Aspects of nanomaterials:
conception, characterization and processing.*

Ecole d'ingénieurs et d'architectes de Fribourg, 10.11.2010

Opportunities and challenges on the way towards a
profitable and responsible application of Nanotechnologies

Workshop June 25th 2010

Fonctionnalisation des surfaces
par des revêtements à base
de laques et produits sol-gel

Mardi, 4.10.2011

8 Research projects

→6 bilateral

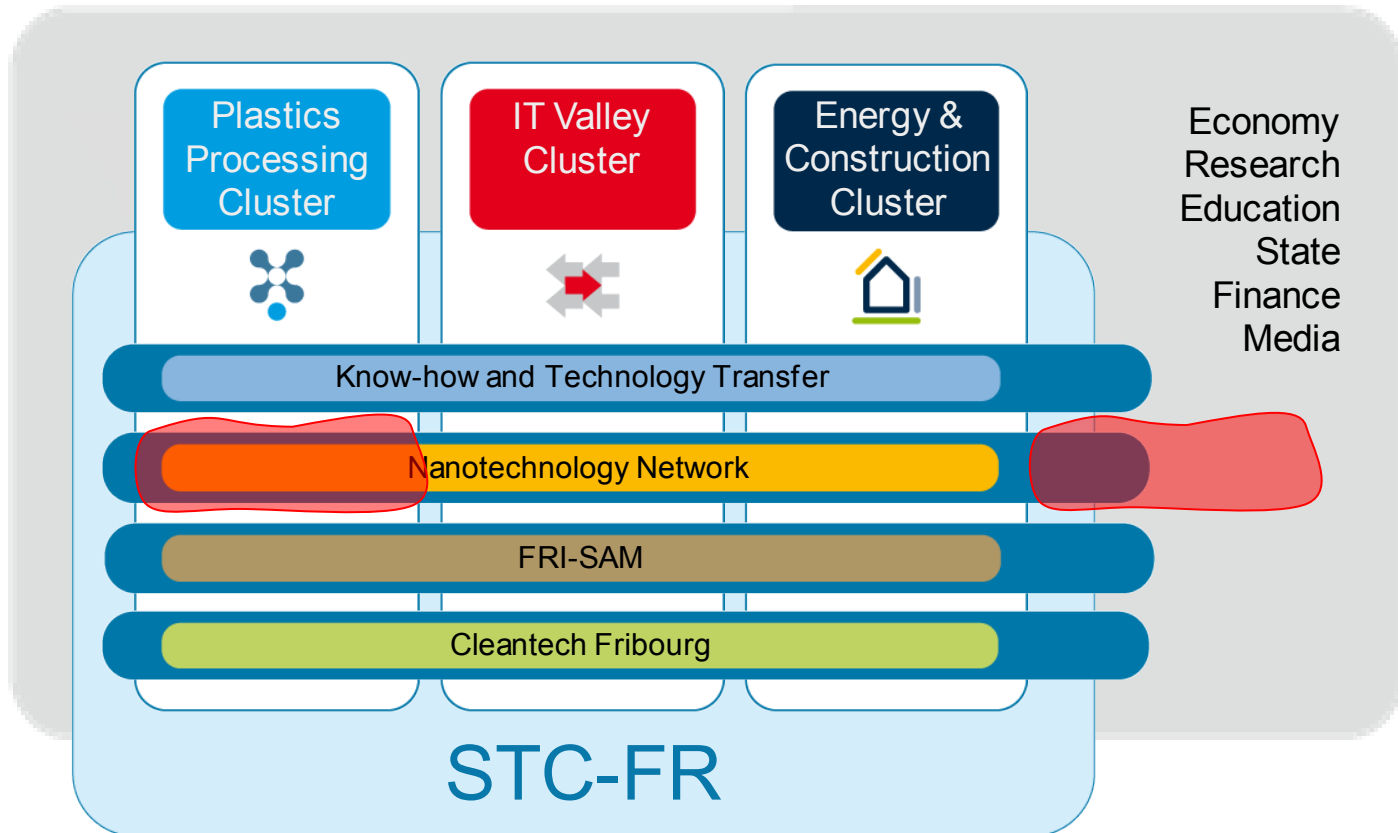
→2 pre-competitive

Fribourg and Nano: Networks



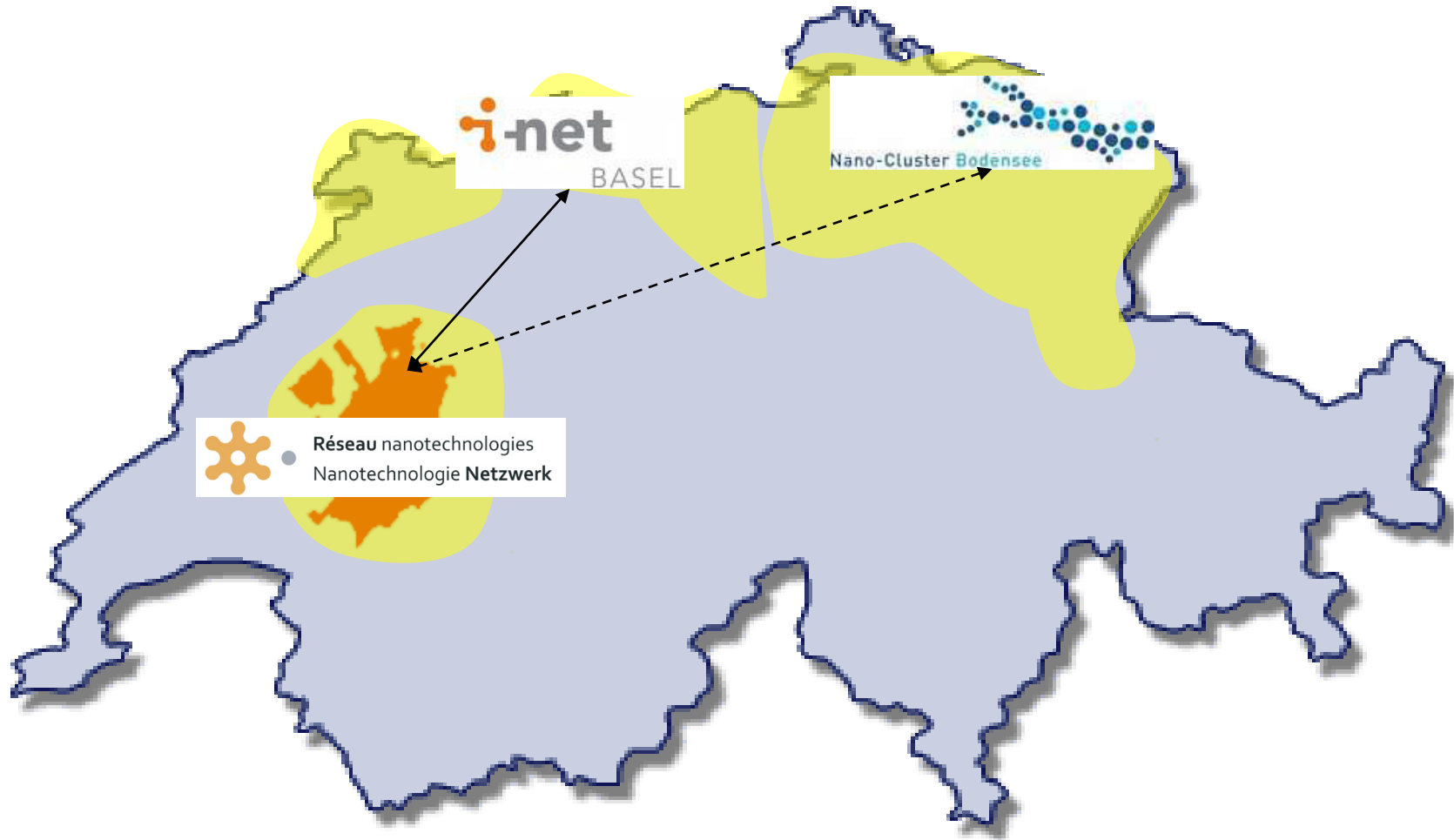
Projet NPR
nouvelle politique régionale

PÔLE SCIENTIFIQUE ET TECHNOLOGIQUE
DU CANTON DE FRIBOURG
SCIENCE AND TECHNOLOGY CENTRE
OF THE CANTON OF FRIBOURG



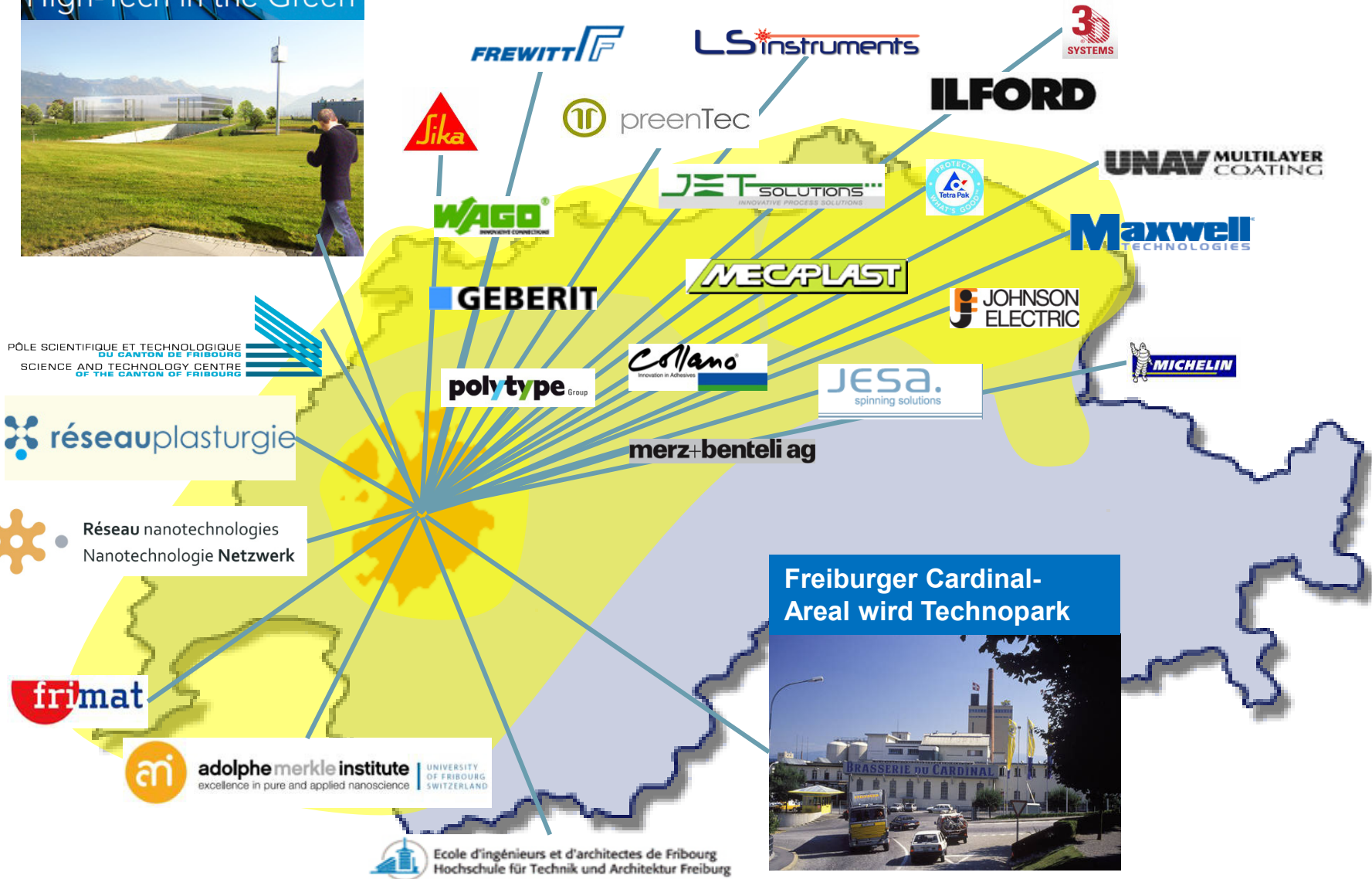
Fribourg and Nano: Reaching out

Collaboration with other similar initiatives



Fribourg and Nano: Future?

High-Tech in the Green



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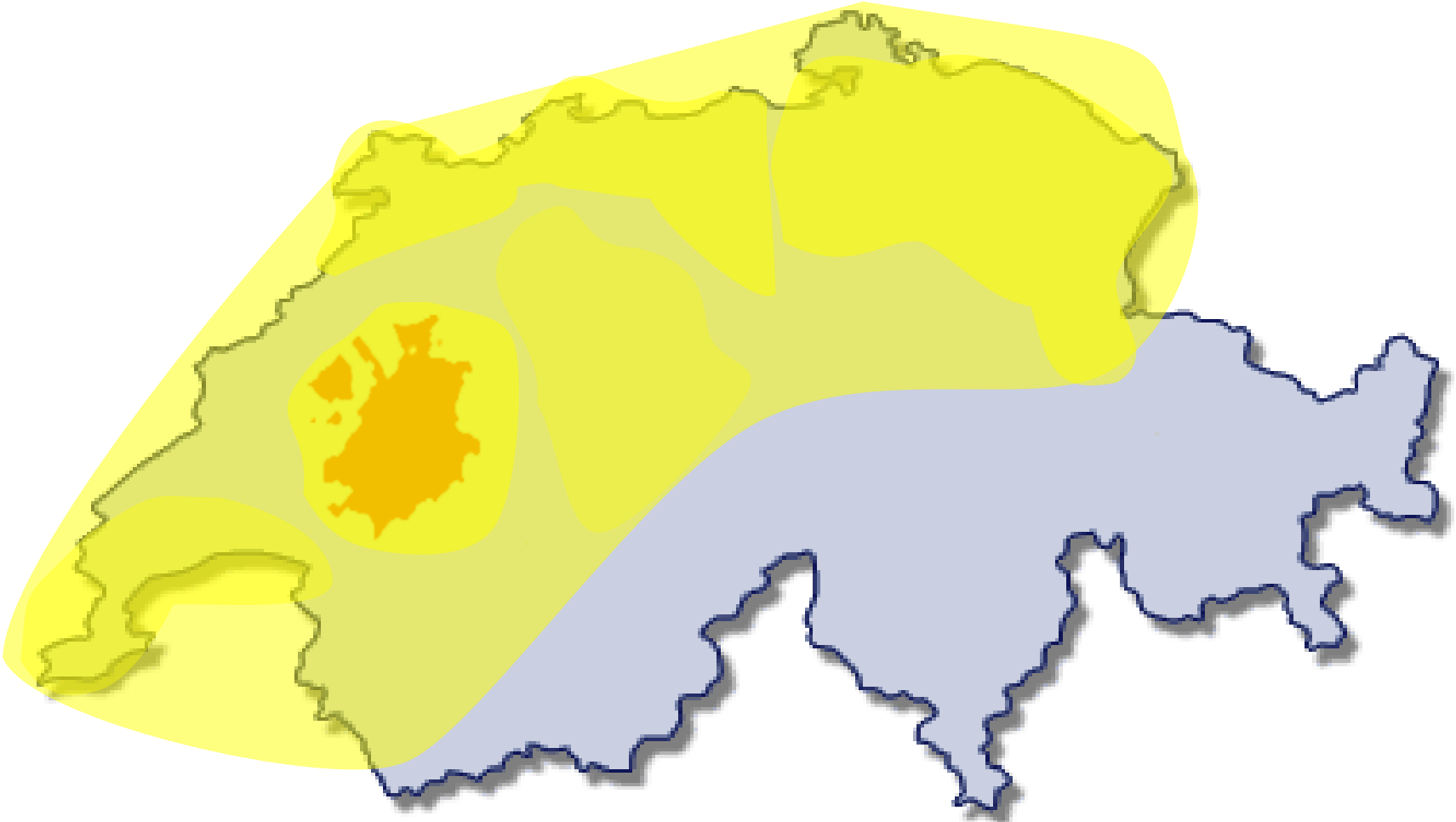
réseauplasturgie

Réseau nanotechnologies
Nanotechnologie Netzwerk

Freiburger Cardinal-
Areal wird Technopark



Fribourg – a hub for nanotechnology in Switzerland



Switzerland – a hub for nanotechnology in europe and the world

