



Synchrotron X-Ray Solutions for Industry

Health and Food
Energy and Environment
Chemistry
Materials
Engineering





The success of a business

often depends upon help from a world leading research centre like the ESRF.

Our 41 X-ray instruments

accelerate innovation in many crucial fields like advanced materials, environment, energy and health.

Some of our clients:

- Arcelor Mittal (Fr)
- AREVA (Fr)
- Astex Therapeutics (UK)
- AstraZeneca (UK & Swe)
- Bayer Schering Pharma (Ger)
- CEA (Fr)
- Corning (Fr)
- Daihatsu (Japan)
- GlaxoSmithKline (UK)
- Johnson Matthey (UK)
- L'Oréal (Fr)
- Merck (Ger, NL)
- Pfizer (UK)
- Procter & Gamble (UK)
- Rhodia (Fr)
- Sanofi-Aventis (Fr, Ger)
- Schneider Electric (Fr)
- Statoil (Nor)
- TEVA (Cz)
- Total (Fr)
- Toyota Motor Europe (Belgium)
- Toyota CRDL (Japan)
- Unilever (NL)



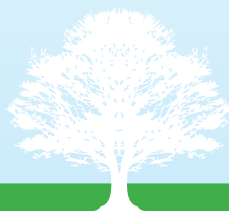
ESRF

a unique portfolio
of industrial research
services and solutions



Health, Food and Personal/Home Care

- Determination of protein structures to speed up drug discovery
- Analysis of foodstuffs for storage, packaging and shelf-life
- Microscopic processes underlying consumer products and plastics



Energy and Environment

- Materials and interfaces in working batteries and photovoltaics
- Study of working fuel cells and catalytic converters
- Materials for hydrogen storage
- Non-destructive identification and 3D mapping of trace elements
- Improved oil recovery



Chemistry

- *In situ* study of catalytic processes
- Microscopic structure and processing of fibres, plastics, colloids, surfactants and polymers
- Characterisation of active pharmaceutical ingredients



Materials

- Analysis of trace elements in complex micro- and nanostructures, and geological samples
- Analysis and microstructure of materials, interfaces and coatings at extreme temperatures, pressures and magnetic fields
- Nanotechnology, stress/strain in silicon structures, nanoparticle analysis



Engineering

- *In situ* imaging of alloy microstructures
- Analysis of microscopic and crystalline properties of polymers
- Stress and strain 3D mapping
- Fatigue and failure tests
- *In situ* determination of porosity of materials at micrometre resolution



Industry
Sectors &
Typical
Applications

Your questions answered

What makes synchrotron X-rays so useful?

Synchrotron X-rays are a unique high-performance probe for non-destructive and non-contact materials analysis over a wide range of lengthscales, right down to the size of an atom. The special properties

of synchrotron X-rays, including element-selectivity, offer a variety of analytical tools. These reveal exceptional detail for the understanding and characterisation of material *in situ*, and often in real time, where traditional techniques cannot reach.



What does the ESRF offer to industrial clients?

The ESRF offers 41 world-class X-ray beamlines, with a concentration of scientific know-how and proven experience working with industry that no other synchrotron in Europe can match.

Our offer ranges from R&D partnerships to made-to-measure experiments or routine data collection.

Who owns the intellectual property rights?

Intellectual property remains exclusively with our clients.

Non-disclosure agreements can easily be set up between the client and the ESRF.

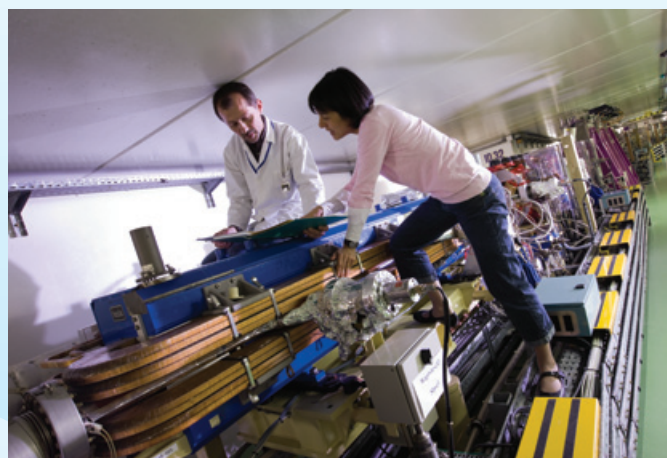
How can industry access the ESRF?

Industry can access our facilities rapidly for a fee, with no requirement for publication of results. Access modes include R&D partnerships and contract research, along with a flexible pricing structure and assured confidentiality. Simply contact us (industry@esrf.fr), and we'll listen to your needs and find a solution.



Does my research staff need special preparation or training?

No. We have more than 200 expert staff specialised in designing and running both experiments and sample environments to cater to clients' needs. You explain your research goals and decide on the optimum level of ESRF staff participation.



Does my staff need to travel to use the ESRF?

No. Industrial users have the option of sending us their samples and the experiment is carried out by our scientists. Macromolecular crystallography experiments can even be done by remote access via the internet.

Is the ESRF accredited for the "Crédit d'Impôt Recherche" (tax credit for research)?

Yes. This allows French-based companies outsourcing research to the ESRF to benefit from a generous tax credit. See our web pages: www.esrf.eu/Industry/cir-agrement.

X-ray tools


From routine measurements
to custom-built experiments



The information sheets opposite provide more detailed information on the X-ray techniques available at the ESRF, along with case studies highlighting some of the success stories at the ESRF.







The ESRF (European Synchrotron Radiation Facility) operates Europe's largest facility for research with X-rays. Our focus on cutting-edge academic research attracts 7000 scientists every year to perform their experiments at the ESRF. The result is 1600 publications annually.

All our facilities and our expertise are also available to industrial partners without requirement to publish results.

19 countries fund the ESRF and provide the lion's share of our 100 million Euro budget. We employ 600 staff, of which 155 are staff scientists.

The ESRF is located in Grenoble, France on the EPN (European Photon and Neutron) Science Campus, along with the ILL (Institut Laue Langevin) - the world's most intense continuous neutron source - and the Grenoble Outstation of the EMBL (European Molecular Biology Laboratory). We also draw on an extensive network of partnerships with the local research and academic community.



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