# BEAMS

## FOR INDUSTRY

**BEAMS for Industry is an evolving national platform that supports and facilitates industrial use of large-scale research infrastructures (LSRIs) like MAX IV, DESY, and ESS.**

### ARE YOU AN EXPERT IN X-RAY OR NEUTRON SCIENCE?

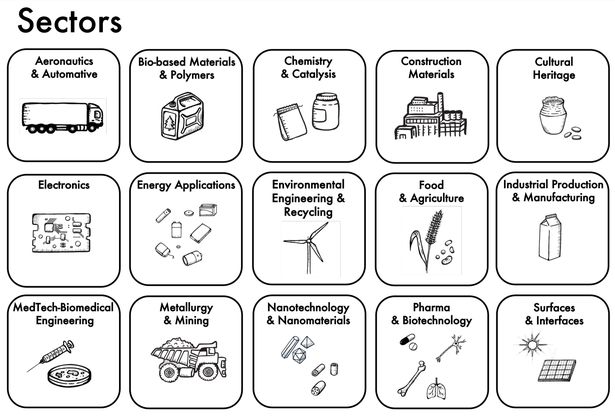
When there is a company that could use your expertise, BEAMS for Industry will connect you with them, enabling you to contribute to innovative solutions for real-world challenges. Experts can be from academia, research institutes, or industry.

### ARE YOU A COMPANY THAT COULD BENEFIT FROM USING LARGE-SCALE RESEARCH INFRASTRUCTURES?

BEAMS for Industry will connect you with experts in using large-scale research infrastructures who can guide your research in line with your company's goals.

### GET INSPIRED BY BEAMS CASE STUDIES

We publish and maintain a library of case studies, detailing industrial research carried out at large-scale research infrastructures which are accessible through BEAMS. Here, you can get inspired by different case studies, learn about the techniques available at these facilities, and connect with experts who can guide you through your research. If you have conducted industrial research at one of these facilities and would like your case highlighted, reach out to us at hello@beams.se.




Illustrations by Emelie Hilner, MAX IV Communications

### FIND A PARTNER THROUGH OUR EXPERT NETWORK

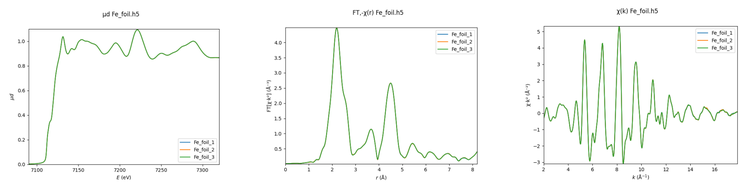
Find a Partner allows you to connect with our experts, who are skilled at all steps of the research process, from sample preparation and experimental design to data analysis and visualisation. You will find a description of the expert, what they can offer, and contact details on beams.se/find-partner. Getting involved as an expert is easy: visit beams.se/join, register, create your profile, and indicate your interest in collaborating with industry.

Our expert network includes

- Large-scale research infrastructures
- Laboratories and lab instruments
- Centres and Institutes
- Consultancies and CROs
- University research groups
- Projects and Networks

### SPECTABLE

Spectable is an online library of absorption spectroscopy data hosted by BEAMS. These measurements are required as reference points when doing XAS experiments and act as an element's signature fingerprints. Spectable is an easy-to-search database and its downloadable spectra files can even be used in your publications.




Absorption spectra data for Fe foil collected by Anna Freiberg and Kajsa Sigfridsson Clauss at the Balder beamline, MAX IV.

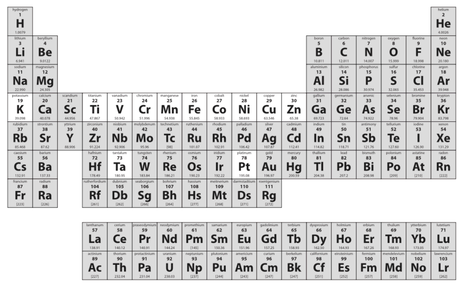
Elements: Fe
Edge: K
Scan range: EXAFS

Detection mode: transmission
Sample preparation: clamped foil
Sample environment: in air

Monochromator: si111 fixed-exit dcm
Temp. of mono crystals: 89K

The highlighted elements on the periodic table are currently available on Spectable.

This is a live feature under continuous development. If you work at a spectroscopy beamline and want to contribute spectral data, contact us at hello@beams.se



### HOW IT WORKS

**1 — Contact & information sharing between BEAMS & incubators of SMEs**

First contact was made between BEAMS (formly MAXESS) & SMILE incubator to discuss possibilities for SMEs to use LSRI.

A presentation, followed by a workshop, by MAXESS at SMILE enabled the scientists to learn about the platform and what was possible at the infrastructures.


**2 — Connections & detailed discussions between the SME & expert about the experiments**

One of the companies at SMILE then contacted MAXESS to be connected with an expert in the network to discuss their research needs.

They discussed how best to study the behaviour of powder-based drugs inside nasal inhalers; which facility was most suitable; and applied for funding.

**3 — Use of a lab-based infrastructure to conduct pre-tests & optimisation conducted by experts & the industry scientists**

Initial lab-based X-ray radiography experiments were conducted using an Rx Solutions scanner at the 4D Imaging Lab of Lund University.

*Figure 1. Sample set up of inhaler at the 4D imaging lab.*

The purpose of this was to carry out pre-tests, optimise the experimental conditions, and optimise the sample environment.

*Figure 2. Radiograph of the inhaler and powder taken using the Rx scanner at the 4D imaging lab with measurements taken at 5 frames per second.*

**4 — Expert & the industry scientists travel to a large-scale research infrastructure to conduct the experiment & provide training**

The expert from MAX IV travelled with the Iconovo scientists to the ESRF synchrotron to conduct high-speed synchrotron X-ray radiography.

This technique allowed them to study dynamic flows in real time, where they could visualise and measure the entire process of powder movement during inhalation.

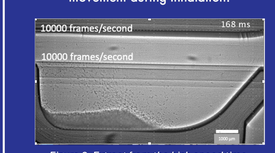
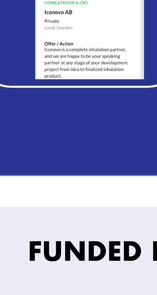



*Figure 3. Extract from the high speed time-resolved radiography at ID19 beamline at ESRF with 10,000 frames per second.*

**5 — Industry gained product knowledge, expertise & presence on BEAMS.se**

The experiments enabled the company to gain more knowledge about their product. It also allowed them access to expertise, training and facilities which is often difficult for SMEs.

The Iconovo case and their expert card are now on BEAMS.se.




### CONTACT US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Co-funded by the European Union



Poster by Shandana Mufti and Claire Lyons