PRÉSENTATION DE RIGAKU

NOUVEAUTÉ SYNERGY-ED

UNE SOLUTION AUTOMATIQUE POUR LA RÉSOLUTION DE STRUCTURES SUR DES CRISTAUX DE MOINS DE 1 MICRON

Laurent LOOS - Responsable ventes Rigaku France – Suisse

Caen Combined Analysis workshop 2021

Rigaku

Introduction to the Rigaku Group

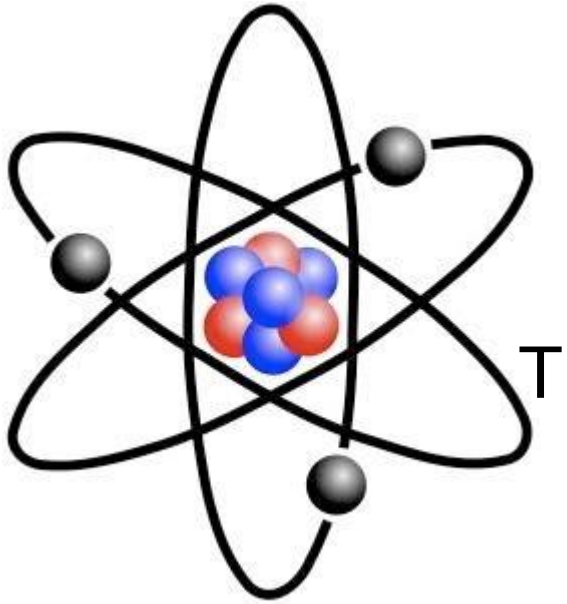
MM/DD/2017

Rigaku Corporation

WHO WE ARE

Since its inception in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Today, with hundreds of major innovations to their credit, the Rigaku Group of Companies are world leaders in the fields of general X-ray diffraction (XRD), thin film analysis (XRF, XRD and XRR), X-ray fluorescence spectrometry (TXRF, EDXRF and WDXRF), small angle X-ray scattering (SAXS), protein and small molecule X-ray crystallography, Raman spectroscopy, X-ray optics, semiconductor metrology (TXRF, XRF, XRD and XRR), laboratory automation, X-ray sources, computed tomography, nondestructive testing and thermal analysis.

OUR MISSION



To Contribute to

.

the Enhancement of Humanity

Through Scientific and Technological

Development.

Rigaku Corporate Profile

- Business Description: Manufacturing & Sales of Science Instruments
- Address: Headquarters・Tokyo Factory・**X**-ray research Lab
  Matsubara-cho, 3-9-12 Akishima, Tokyo 196-8666
-
- Osaka Office & Factory
- Akaoji-cho 14-8, Takatsuki, Osaka 569-1146
-
  - Yamanashi Factory
  - Wakamiko 4495-8 Sutama-cho, Hokuto, Yamanashi 408-0112
- Representative: President & CEO Hikaru P. Shimura
- Founded: 6th December 1951
- Capital: 100 Million Japanese Yen
- Employees: Approx. 730 Employees (Approx. 1,400 Group Employees)
- Annual Sales: 37.4 Billion Japanese Yen (as of FY ending March 2016)

Rigaku Group in Japan

Rigaku Corporation

Headquarters (Tokyo)
Tokyo Factory
Osaka Factory
Yamanashi Factory
X-ray Research Lab
Tokyo Office
Osaka Office
Tohoku Office
Nagoya Office
Kyushu Office
Sapporo Service Station
Tsukuba Service Station

Rigaku Mechatronics Co., Ltd.
Vacuum and Magnetic Seal Manufacturing and Sales

Rigaku Yamanashi Corporation
General Purpose Instruments, X-ray Generator Manufacturing

Rigaku Logistic Corporation
Logistics Business

Nippon Instruments Corporation
Mercury Analyzer Manufacturing and Sales

Rigaku Service Co.
XRF Products and Parts Manufacturing and Sales

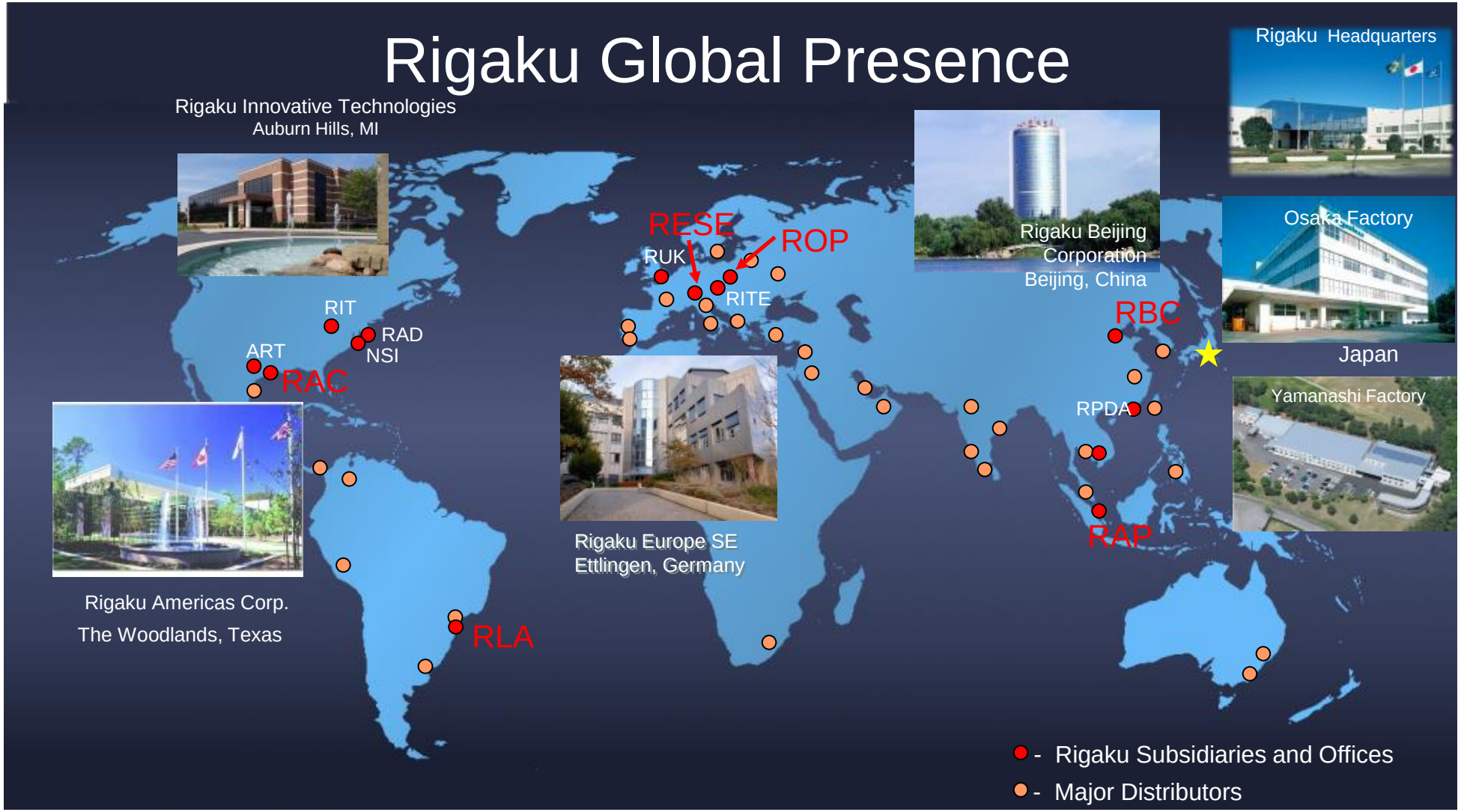
Rigaku Facilities in Japan

3-9-12 Matsubaracho, Akishima, Tokyo

14-8 Akaojicho, Takatsuki, Osaka

4495-8 Wakamiko, Sutamacho, Hokuto, Yamanashi

Rigaku Global Presence



RAC: Rigaku Americas Corporation (Texas, USA)
ART: Applied Rigaku Technologies, Inc. (Texas, USA)
RIT: Rigaku Innovative Technologies, Inc. (Michigan, USA)
NSI: Newton Scientific, Inc. (Massachusetts, USA)

RAD: Rigaku Analytical Devices, Inc. (Massachusetts, USA)
RLA: Rigaku Latin America Ltda. (Sao Paulo, Brazil
RESE: Rigaku Europe SE (Ettlingen, Germany)
RITE: Rigaku Innovative Technologies Europe s.r.o. (Praque, Czech Republic)
ROP: Rigaku Polska sp. z.o.o. (Wrocław, Poland)
RUK: Rigaku Americas Corporation UK office (Kent England)

RBC： Rigaku Beijing Corporation (Beijing, China)
RPDA: Rigaku Portable Devices Asia Limited
RAP： Rigaku Asia Pacific Pte. Ltd. (Singapore)

Rigaku Analytical Technologies

XRD	XRR	SAXS	XRF	XRT & CT	TA & EGA	Raman
Crystal Structure & Lattice Constant	**Film Thickness, Density & Roughness**	**Particle Size & Shape**	**Elemental Analysis & Thin Film Analysis**	**Internal Structure Defects & Foreign Bodies 3D Observation**	**Thermal Properties (Decomposition, Expansion, Melting, Transition, Oxidation, Crystallization) Evolved Gas**	**Material Identification on Vibration Spectra**
• Ceramics • Nanocarbon • Nanoglass • Battery Materials • Superconductors • Nanometals	• Multilayer Film • Amorphous Films • Patterend Wafers	• Metallic Nanoparticles • Nanoholes • Nanowire • Nanodots • Nanotubes	• Ceramics • Battery Materials • Ferrous/Nonferrous • Platings & Coatings • WEEE, RoHS • Glass	• Bio • Lab Animals • Pharmaceuticals, Rubber • Lightweight Materials • Electronic Components	• Ceramics • Magnetic Material • Glass • Polymers • Thin Films	• Narcotics, Hazardous Substances • Pharmaceutical Raw Materials • Plastics

Micro-area, micro-volume, ultra thin films, high resolution, sensitivity & throughput, complex info systems, in-situ, automation

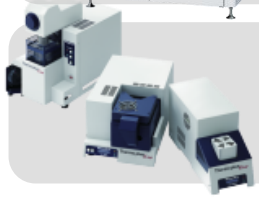
Rigaku Core Products

➢ X-Ray Diffraction (XRD)

Material composition identification, quantitative estimation, crystal structure analysis

➢ X-Ray Florescence Analysis (XRF)

Material element identification, quantitative estimation chemical bond analysis



➢ Thermal Analysis (TA)

Material thermophysical property analysis, analysis of evolved gas from heat-decomposition

➢ Raman Spectroscopy

Component analysis, rapid materials identification by Raman spectrometer

➢ X-Ray CT (XCT)

Animal Imaging, In-vivo3D CT Imaging, 3D X-Ray microscopy

➢ Non-destructive Testing (NDT)

X-ray TV test, X-Ray contamination test, X-Ray transmission method imaging

Product Portfolio

■ X-ray Diffraction (XRD) Products

Tokyo, Yamanashi

■ X-ray fluorescence (WDXRF) Products

Osaka

■ X-ray fluorescence (EDXRF) Products

USA

■ Thermal Analysis (TA) Products

Tokyo,Yamanashi

■ Semiconductor Metrology Products

Osaka, Yamanashi

■ Raman Spectroscopy Products

USA

■ X-ray CT

Tokyo

■ X-ray Nondestructive Testing Equipment

Tokyo

■ Mercury Analyzer

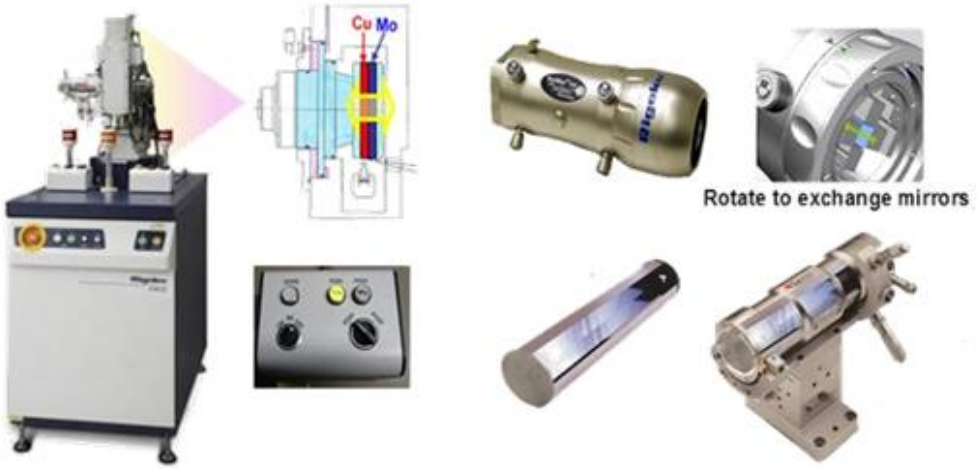
Osaka

■ Magnetic Seal Units for Vacuum Rotary Feedthroughs with Ferrofluid

Tokyo

Core Technology: Sources, Optics, Detectors, Precision Mechanics, Software

Ultra bright XG/, confocal mirror



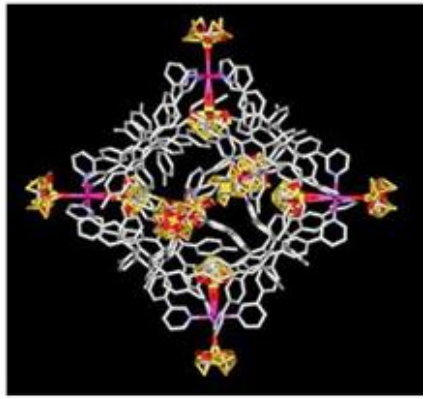
High intensity micro X-ray beam module

Inplane Diffraction Optics
Theta-theta goniometer

Hybrid multidimensional pixel detector

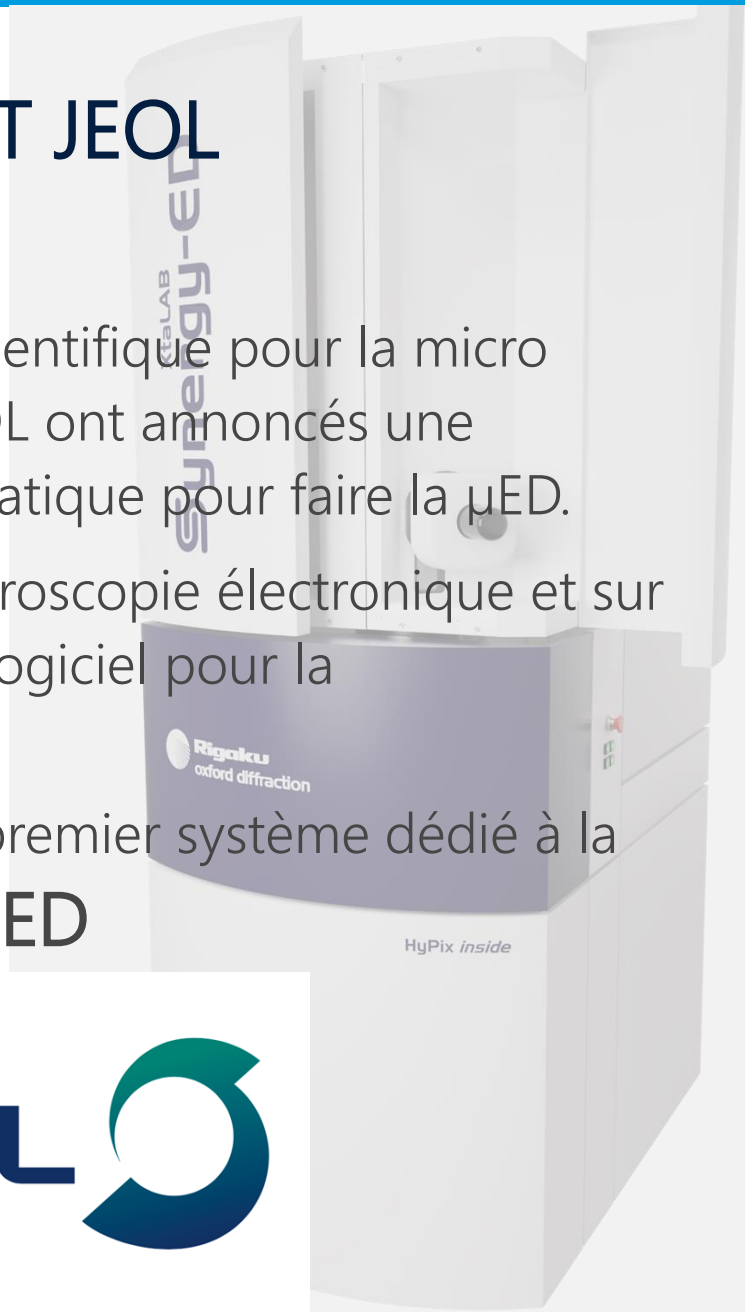
High resolution CCD camera

Software



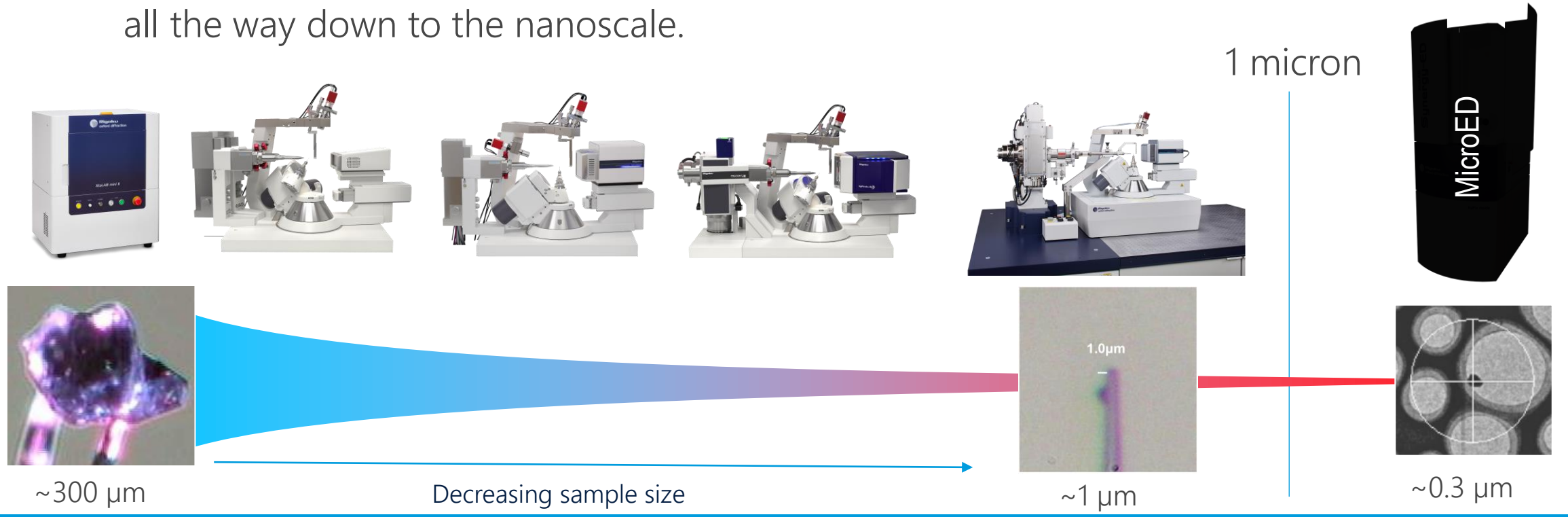
SYNERGY-ED : COLLABORATION RIGAKU ET JEOL

- Rigaku a identifié un immense besoin de la communauté scientifique pour la micro diffraction électronique (µED), le 25 mai 2020, Rigaku et JEOL ont annoncés une collaboration pour développer une nouvelle solution automatique pour faire la µED.
- Cette collaboration s'appuie sur l'expérience de JEOL en microscopie électronique et sur celle de Rigaku pour le développement du détecteur et du logiciel pour la détermination des structures crystallines.
- Le 25 mai 2021, Rigaku a annoncé la commercialisation du premier système dédié à la micro diffraction entièrement automatique : le Synergy-ED



OBJECTIF : TRAVAILLER SUR DES CRISTAUX DE MOINS DE 1 MICRON

- X-rays reach down to micron size crystals
- Electrons reach *up* to micron sized samples.
- X-ray and electron diffraction are **complimentary** techniques, together allowing study of samples from several hundred microns all the way down to the nanoscale.



Rigaku
oxford diffraction

INTRODUCING THE XtaLAB SYNERGY-ED

The world's first commercially available, dedicated electron diffractometer

WHAT IS XtaLAB SYNERGY-ED?

- The world's first commercially available dedicated electron diffractometer
- XtaLAB Synergy-ED is not a TEM!
- Designed for electron diffraction using the rotation method

HARDWARE

- The XtaLAB Synergy-ED comprises of
  - A JEOL 200kV electron source, column and beam optics optimised for electron diffraction purposes.
  - A Rigaku HyPix-ED detector optimised for operation in the microED experimental setup.
  - A sample stage allowing x,y,z sample alignment and rotation (tilt) about a single axis. A Cryo option is available.
  - CrysAlis^{Pro} for instrument control, data collection and reduction
  - Cabinet designed for a compact footprint

XtaLAB SYNERGY-ED

- Disponibilité
  - Début commercialisation 1er juin 2021
  - Pour toutes questions

    Merci de me contacter :

    Laurent LOOS

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    Téléphone : 07 88 75 83 89
  - Démonstrations
    - Possible à l'usine au Japon
    - Pour l'organisation d'une démonstration, merci de me contacter

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