



Thursday 23 November 2023

# CET MEMBERS' DAY

## Tornado micro-XRF technique “the lab of the future”



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<sup>2</sup> Centre for Exploration and Targeting, University of Western Australia



Centre for **EXPLORATION TARGETING**



THE UNIVERSITY OF **WESTERN AUSTRALIA**

## Investing in Future Industry Readiness

### The path to realising UWA's "Geoscience Lab of the Future"

As Australia gears-up to accelerate critical mineral discoveries, ensuring we are well placed to capitalise on the economic opportunities of a "net zero future" will rely on future generations of our industry having the skills required, on the best tools for the job.

**"Geoscience lab of the Future."**

*Want to learn more?*

**Micro XRF applications in Geoscience Research.**

*Monday 27<sup>th</sup> November*

Third Year Lab, Department of Earth Science



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We're looking to industry partners to help us achieve this goal, beginning with giving a permanent home to the M4 TORNADO Micro-XRF instrument currently on loan from Portable Spectral Services and Bruker Nano Analytics.



### 🔍 Analyse This!

As an incentive to industry stakeholders (and to give our students practical experience on the M4) we're co-ordinating an initiative where industry members can get valuable mineralogy scans in return for donations towards UWA's "Geoscience Lab of the Future". In our goal to raise \$200K (tax deductible) each \$1000 donated will receive a sample scan by the M4 TORNADO by one of our Geology Students. Sample scan sizes will be up to 75 mm x 25 mm at 100µm, 10mS. Each sample will take approximately 40mins to scan. To donate please click the link below or contact the School of Earth Sciences on kengchai.ng@uwa.edu.au

**1K DONATED** = 1 x M4 TORNADO MINERALOGY SAMPLE SCAN

#### DONATION TIERS

Platinum = \$50,000	x 1 Available
Gold = \$25,000	x 3 Available
Silver = \$10,000	x 5 Available
Bronze = \$2,500	x 10 Available

[Click to Donate](#)

[Click to Email EOI](#)

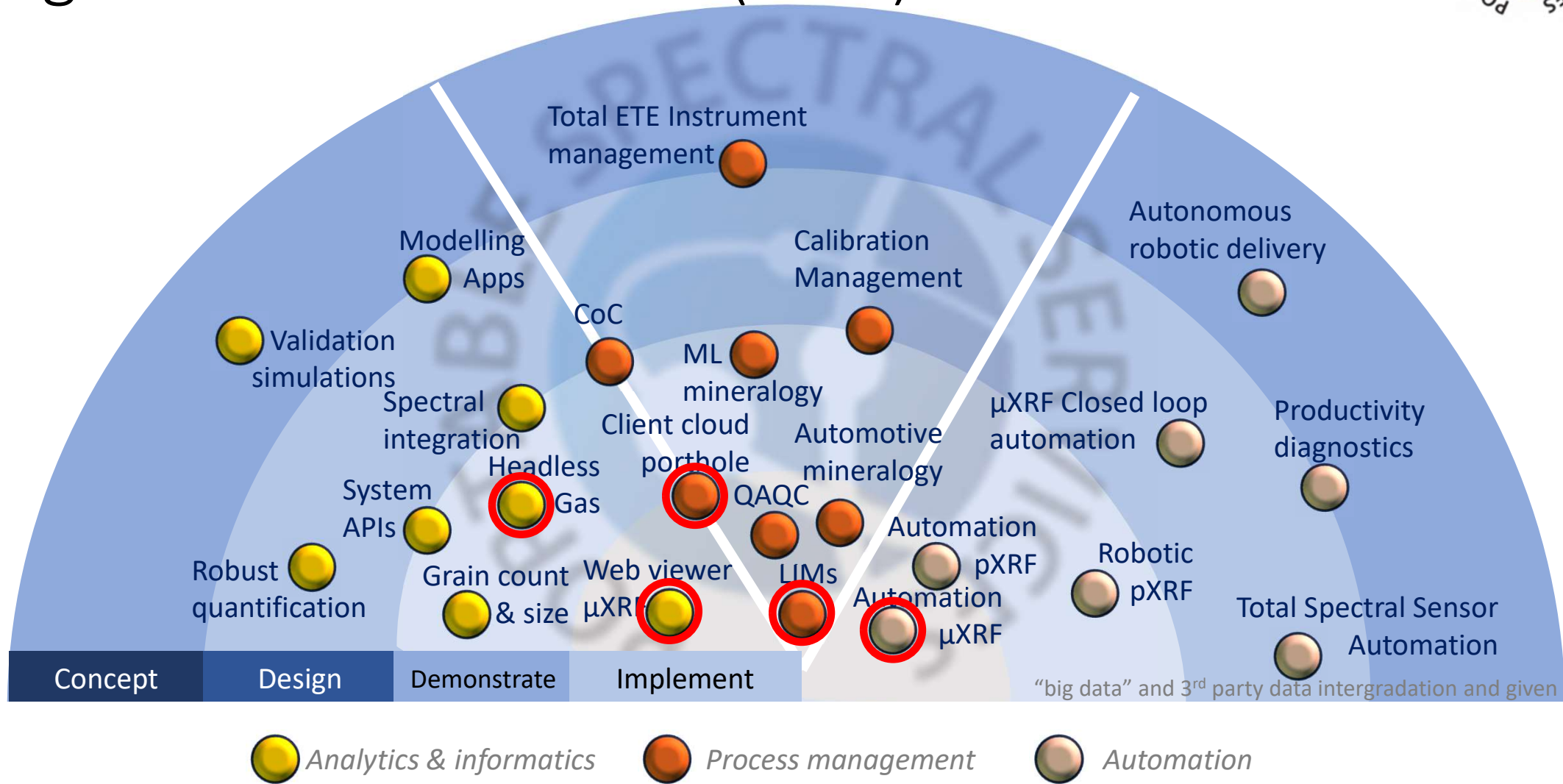
Project Partners



Ph: +618 9321 2830  
info@portaspecs.com  
www.portaspecs.com



# Digital Lab of the Future (Now)

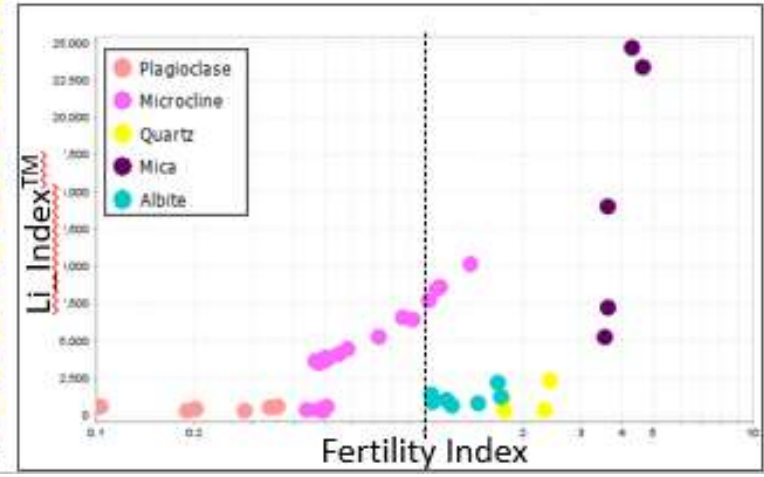
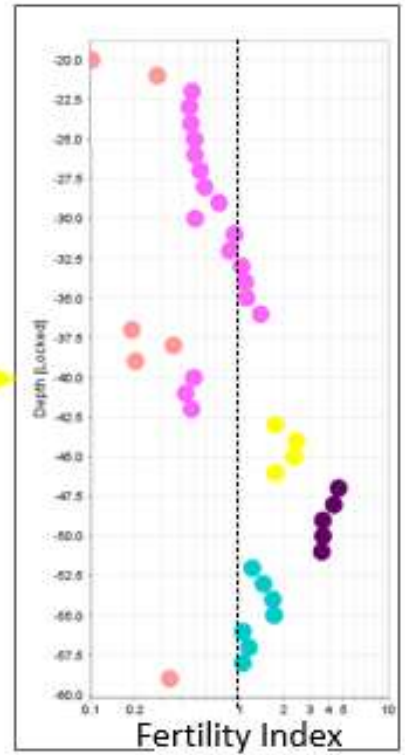
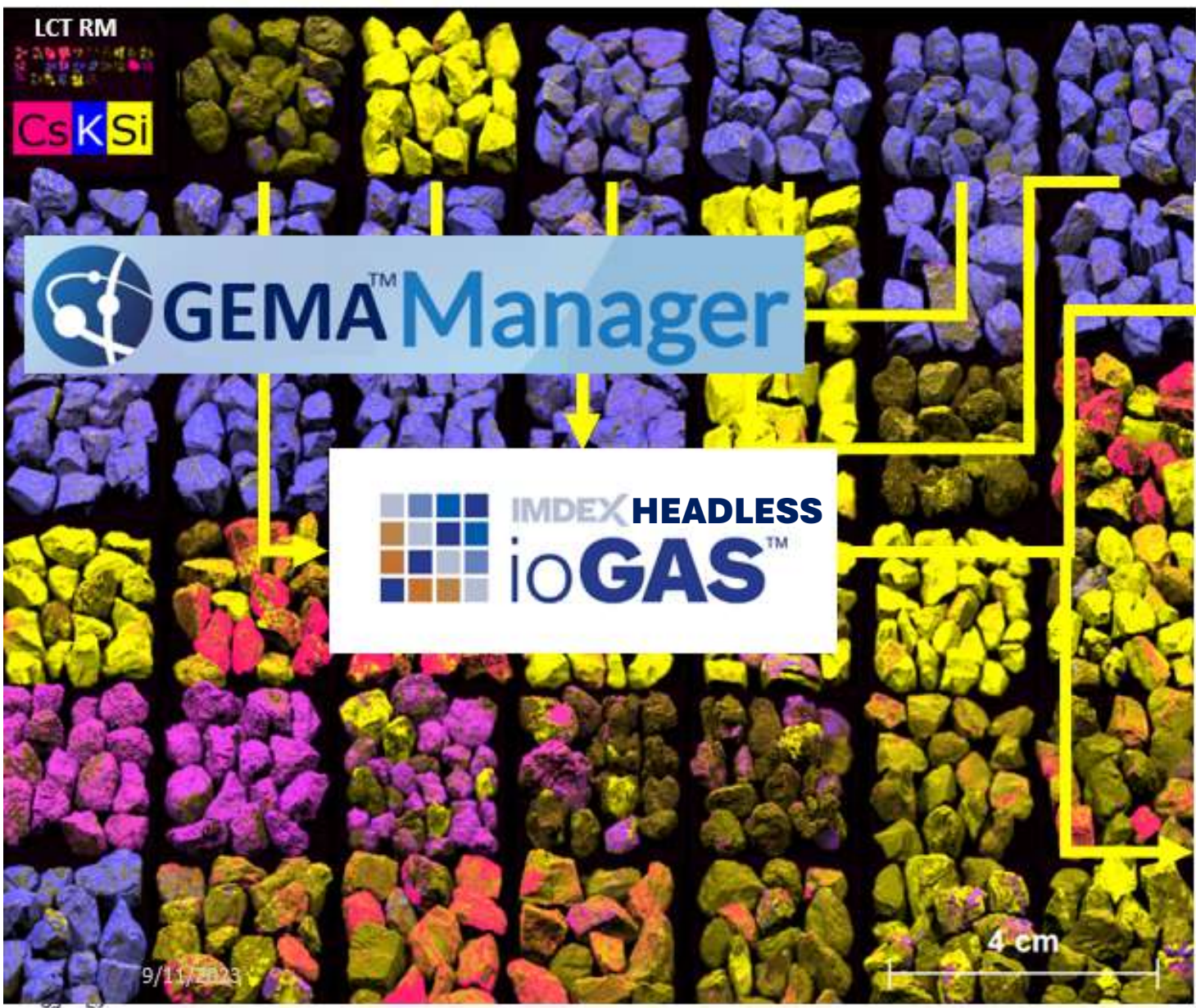


Automation  
Project Group



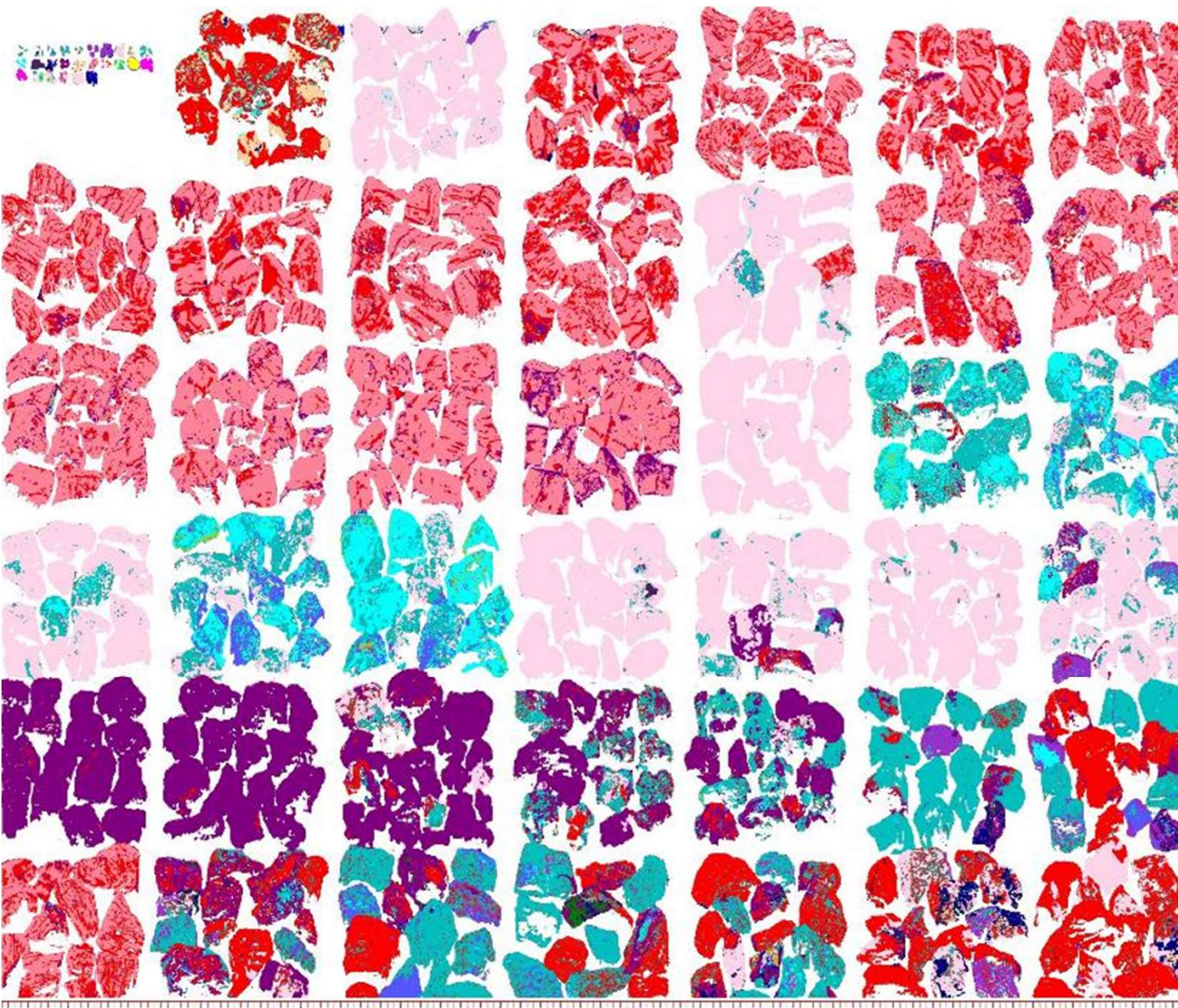
Automated Micro-XRF Suite





**Real Time  
Processing**

# Mineralogy



Mineral	Area%	Colour
Microline (Rb-Bearing)	24.71	Light Pink
Quartz	21.62	Very Light Pink
Albite	18.16	Red
Lepidolite-White Mica	14.65	Dark Purple
Petalite	12.69	Cyan
Eucryptite	3.54	Bright Cyan
Pollucite	1.27	Blue
Tourmaline	1.25	Dark Purple
Kaolinite-White Mica	0.79	Light Orange
Zinnwaldite	0.67	Dark Blue
Cookeite	0.20	Olive Green
Celadonite	0.13	Dark Green
Montmorillonite	0.11	Yellow
Cassiterite	0.05	Magenta
Spodumene	0.05	Bright Green
Amblygonite	0.03	Dark Purple
Holmquistite	0.03	Dark Blue
Columbite	0.02	Brown
Rutile	0.02	Yellow

Username

PortableSpectralServices

Password

.....

Log in

Request Reset

Enter Reset Token



**GEMA<sup>TM</sup> Management Portal**  
by Portable Spectral Services



Open



Recent



Mosaic



Element  
Select



Sample Info



Map



Signal  
Graphs



More



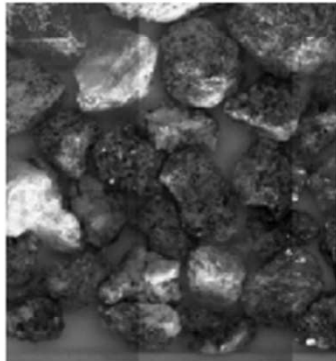
# MμView

**Spectral Viewer v1.01a**  
by Portable Spectral Services



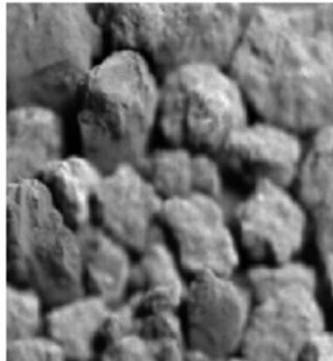
Sort    Image Controls  Scale 160%

Video



4.9mm

Total Fluorescence Response



4.9mm

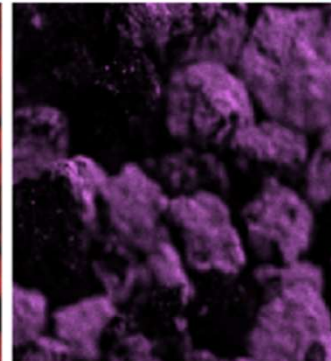
Al K $\alpha$  (Detector 1)



4.9mm

Max X-ray Count: 257

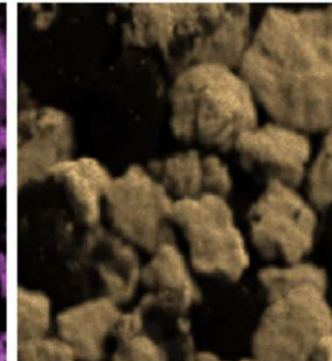
K K $\alpha$  (Detector 1)



4.9mm

Max X-ray Count: 408

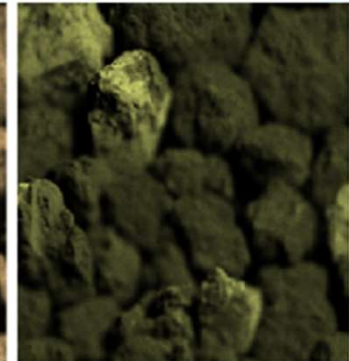
Rb K $\alpha$  (Detector 1)



4.9mm

Max X-ray Count: 903

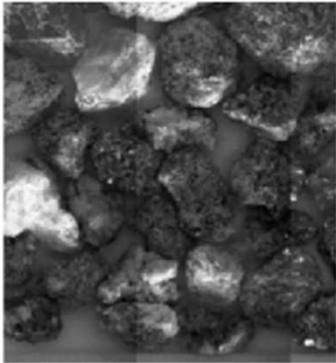
Si K $\alpha$  (Detector 1)



4.9mm

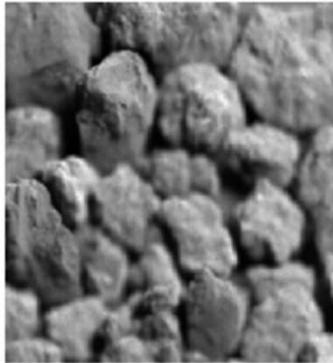
Max X-ray Count: 1423

Video



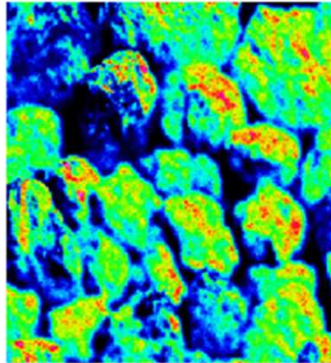
4.9mm

Total Fluorescence Response



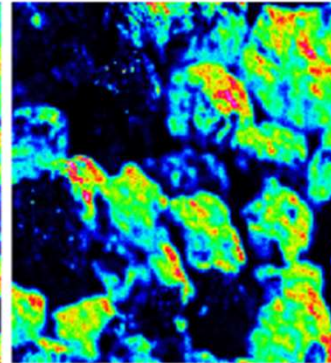
4.9mm

Al K $\alpha$  (Detector 1)



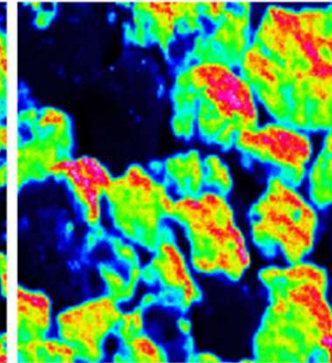
4.9mm  
Max X-ray Count: 257

K K $\alpha$  (Detector 1)



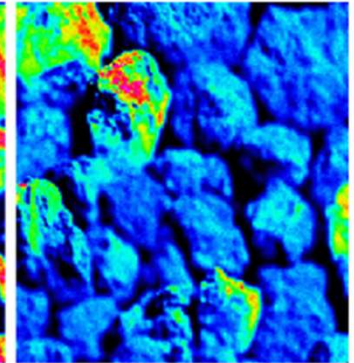
4.9mm  
Max X-ray Count: 408

Rb K $\alpha$  (Detector 1)

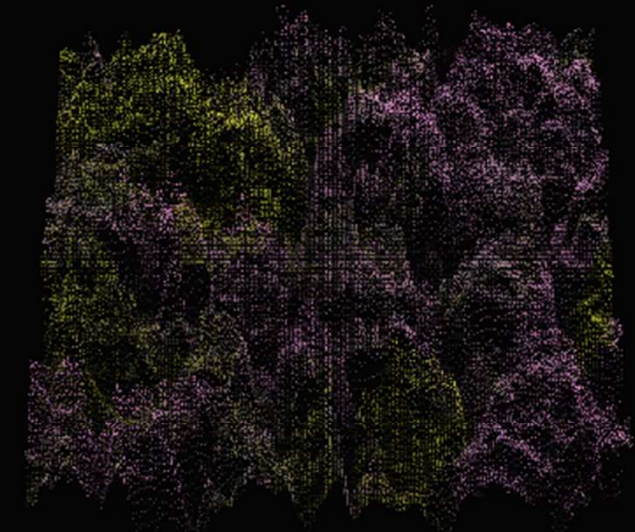
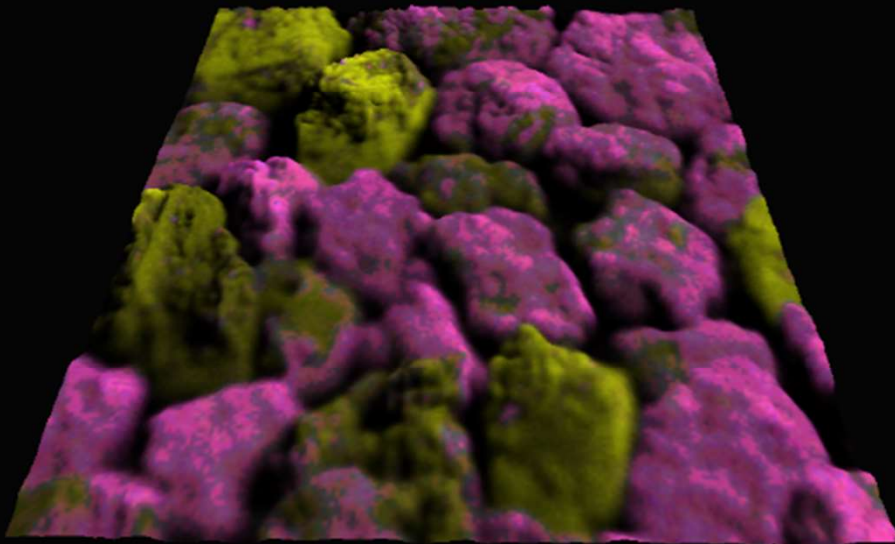


4.9mm  
Max X-ray Count: 903

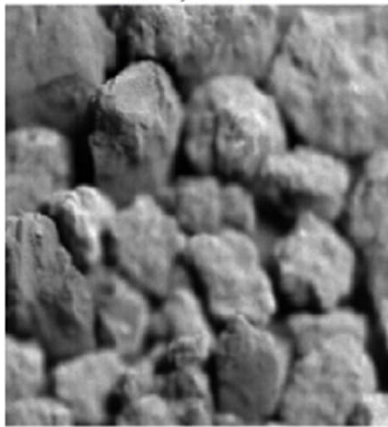
Si K $\alpha$  (Detector 1)



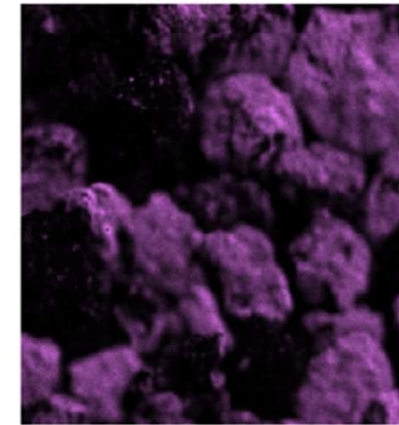
4.9mm  
Max X-ray Count: 1423



Total Fluorescence Response  
Max X-ray Count: 3811



K



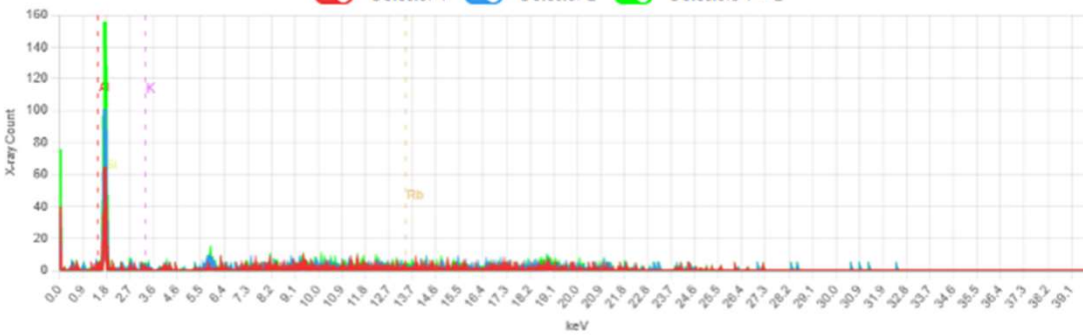
Max X-ray Count: 408

Log Graphs

Pixel Spectra - (0, 0)

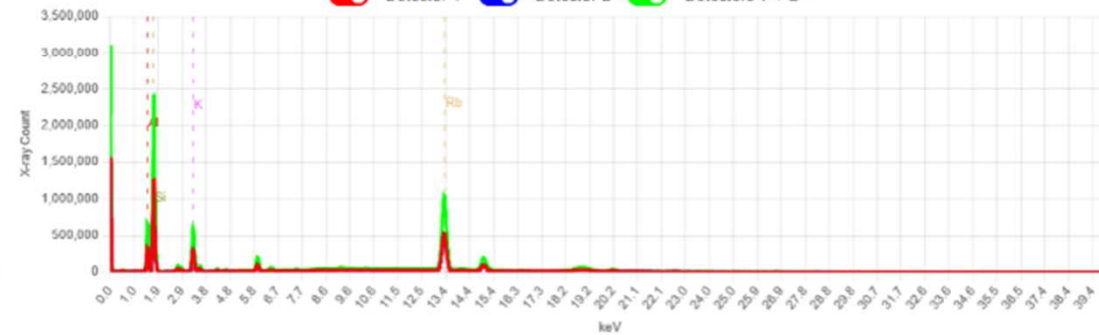
Reset Zoom

Detector 1  Detector 2  Detectors 1 + 2



Map Spectra

Detector 1  Detector 2  Detectors 1 + 2



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Donate](#)

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Email EOI](#)



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**THANK YOU**

