



# RoboMet

## A Fully Automated, Serial Sectioning System for Three-Dimensional Microstructural Investigations



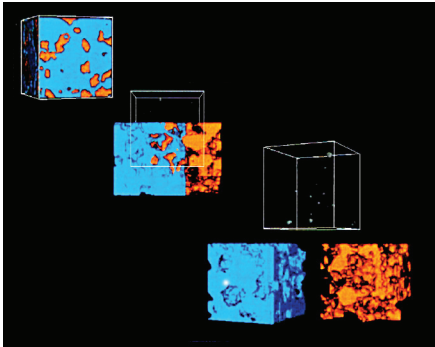
### Features

- » Examine the quality of your materials.
- » Identify solidification defects in castings and freckle defects in single crystal Ni-Super alloys.
- » Validate integrated computational materials engineering.
  - » Improve failure analysis and fitness for service assessments.
- » Analyze grains, grain boundaries, precipitates, voids, and dendritic structure formations.
- » Further develop advanced image processing algorithms.

### Benefits

- » Automation increases sectioning rates up to 100 times the baseline manual process.
- » Automatic mechanical manipulation of the specimen decreases variability between section images.
  - » Consistency and precise control over field-of-view, illumination, exposure time, focus and contrast levels.
- » Friendly automation software requires no extensive training.
- » Metered dispensing of diamond suspension reduces consumable cost.

## Robo-Met.3D Specifications



\*Courtesy of Prof. Matt Miller, Cornell University. Images from a 3D Microstructure of a Model Fe-Cu Material.

Slice Thickness	0.20 - 10.μ (Material Dependent)
Slice Rate	Up to 20 per hour
Sample Size	38.1 mm & 50.8 mm diameter
Etching	Automated
Optical Illumination	Bright field, polarized
Microstructure Data Collection	Real time
Data Sets Acquired	Ti, steel, metal matrix composites, Ni-Super alloys, carbon foams, metallic foams

### Equipment Standard

- Automated polishing system
- Fully automated inverted microscope
- 2 ultrasonic cleaning stations
- 3 washing/dip well stations
- 1 drying station
- Operators station (external to cell)
- PC and LCD monitor
- Rendering volume software
  - R3D Imaging



### Optional

- Multi-platen cassette system
  - Allows polishing with multiple cloth and diamond suspension combinations
- Increases the range of serial section depth (slice thickness), without sacrificing surface finish quality



## Robo-Met Products / Services Overview

UES, Inc. has developed a series of products and services to meet the growing needs of materials characterization community. UES commercialized Robo-Met.3D in 2006, and has since continued to develop related products and services to support further advancements in Materials Science.

### Robo-Met.3D

Robo-Met.3D is a fully automated, serial sectioning system for three-dimensional microstructural investigations. This system features a full enclosure for convenience and safety, and a large granite surface for vibration-free images. It is a completely automated system after the initial setup via the external operator's station. The automation software has a straight-forward, easy to use interface, allowing an easy configuration for each sample run. Robo-Met.3D enables more time for data analysis and characterization by eliminating the drudgery of long days sitting at the polishing station and microscope. It ensures repeatable and accurate data is collected in an efficient and cost-effective manner.

### Robo-Met.3D Services

A Robo-Met.3D has been installed at UES, Inc. headquarters to provide serial sectioning services to our customers. Supported and operated by our group of highly experienced metallurgists and materials scientists, UES can provide solutions for all of your three-dimensional characterization needs.

### Robo-Met with SEM Technology

In conjunction with researchers at AFRL and NRL, UES is developing a Scanning Electron Microscope capable Robo-Met.3D. This system will have all the features of the Robo-Met.3D, only using SEM resolution to increase the microstructure investigations.

### Image Processing Services

Utilizing the latest software, UES can provide Image Processing Services that will allow full manipulation of the data set obtained. From Statistics to Meshing and Processing, this service will create the information required to produce a sample that is suited for Finite Element Modeling.



**For More Information, Please Contact:**

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