

# *“Connected multidimensional and multiscale Characterization Approaches for the Research Lab (CARL)”*



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- During sample analysis a **representative region** of the sample must be found and navigated with different microscopes: light, electron, ion X-ray and many more
- Information must be **combined** to get a **thorough understanding** of the sample
- Correlative Microscopy is more than a combination of microscopes: it is about software, techniques and data. It aims to provide **fast** and **easy workflow**



# Highlights of Xradia Versa Family

## Extending the Limits of Micro- and Nano-CT Solutions

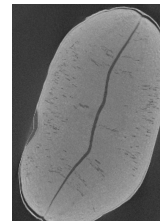


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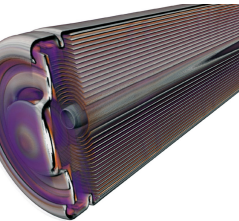
- ✓ **Non-destructive** sub-micron scale microscopy of intact samples
- ✓ **High flux and fast scans** without compromising resolution
- ✓ **True spatial resolution of 500 nm (Xradia Versa)** with a minimum achievable voxel size of 40 nm
- ✓ **High resolution** across a broad range of sample types, sizes, and working distances
- ✓ **In situ imaging** for non-destructive characterization of microstructures in controlled environments and over time
- ✓ The **Resolution at a Distance (RaaD)** architecture enables high resolution 3D imaging of larger, denser objects



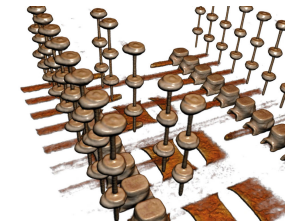
**Fig. XX - Zeiss  
Xradia Versa  
620**



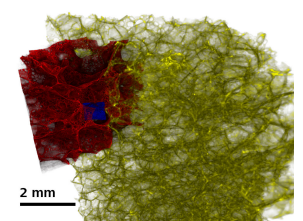
Life Science



Batteries



Semiconductors



Raw Materials

@ZeissOfficialWebsite

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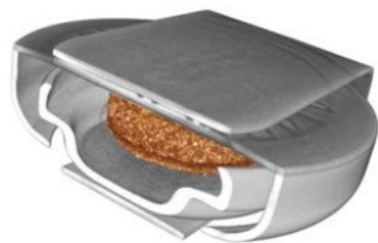
# X-ray Microscopy (XRM) Applications

## A wide range of applications

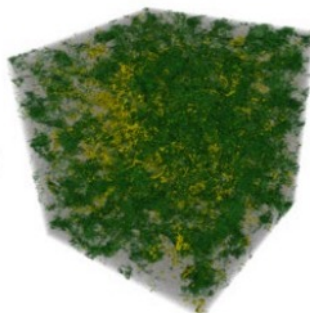


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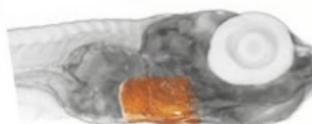
**Material  
Science**



**Natural  
Resources**



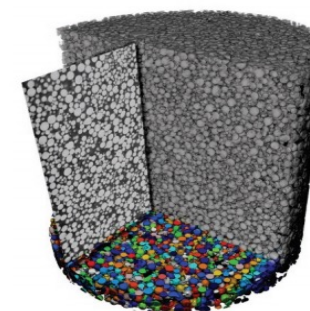
**Life  
Science**



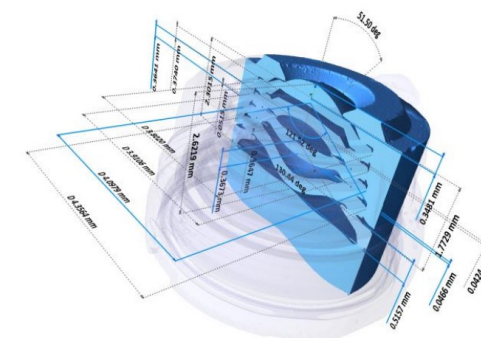
**Semiconductors**



**Additive  
Manufacturing**



**Industrial  
Metrology**

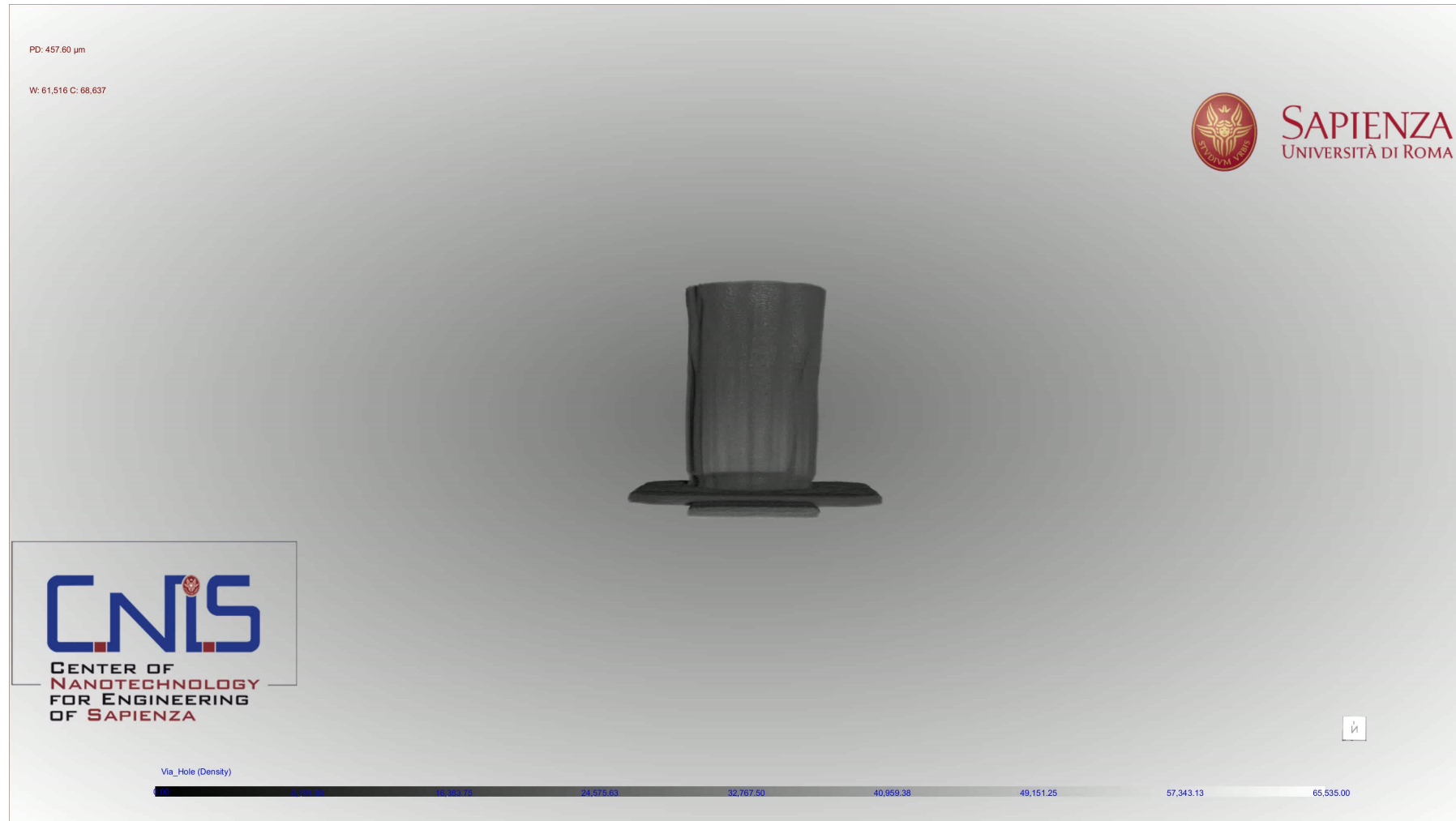


# X-ray Microscopy (XRM) Applications

## Electronics and Semiconductors – Via Hole



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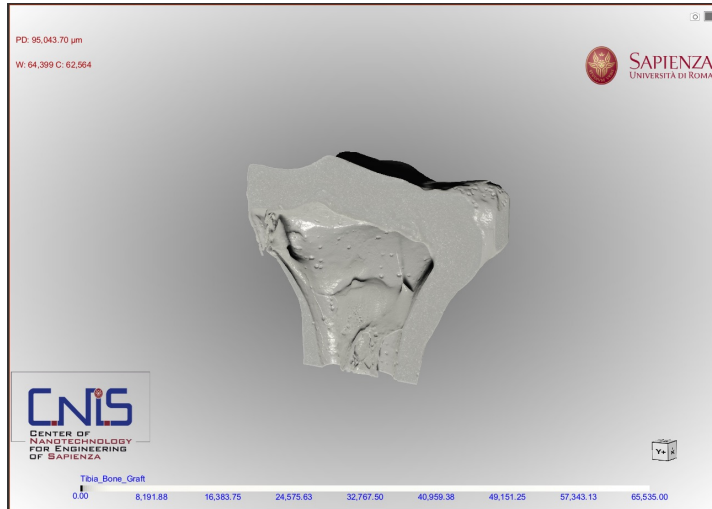


# X-ray Microscopy (XRM) Applications

## Biomedical Engineering – Bone Grafting



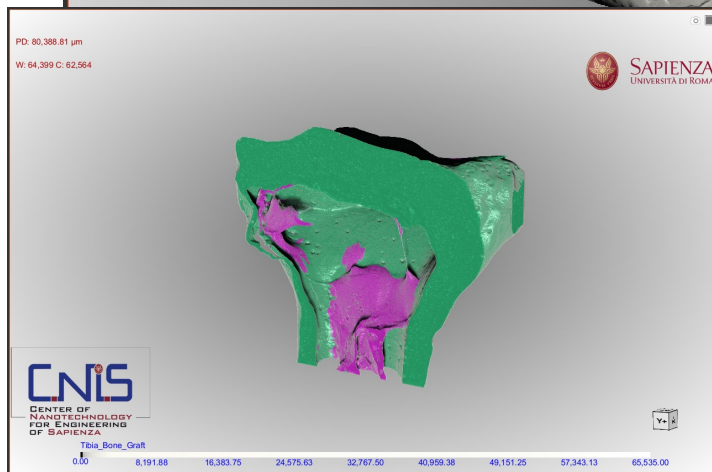
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### Clipping:

‘Clip Box’ allows to get a clear view of the internal structure of the graft

This process is crucially useful identify **hidden detail** of the object and **study the results** of the fabrication process



### Image Segmentation:

the process of partitioning an image into multiple segments (i.e., sets of pixels).

This process is crucially useful to **simplify** the representation and give **meaningful** visual **information** of an object.

32,767.50 40,959.38 49,151.25 57,343.13 65,535.00

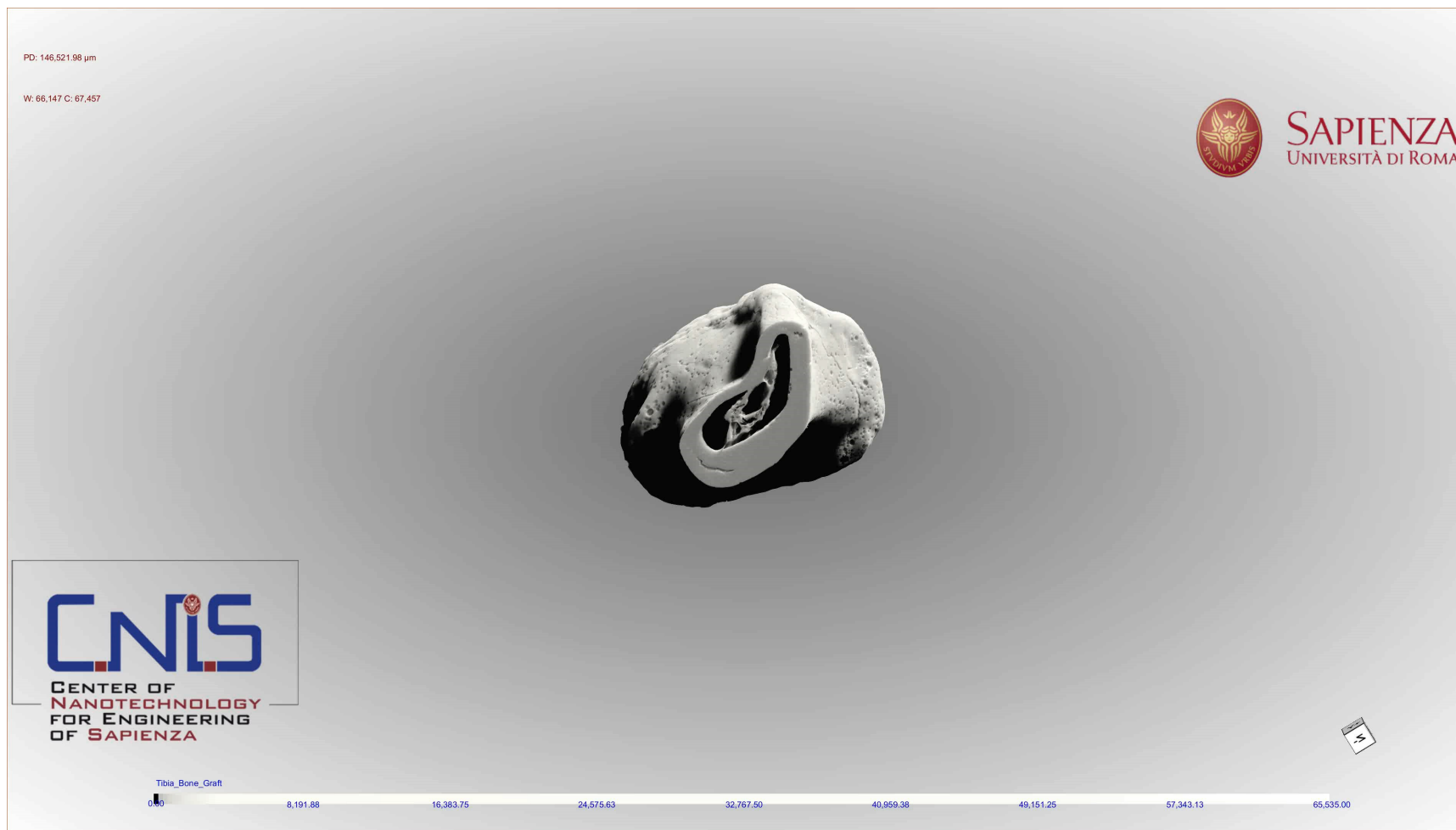
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## Biomedical Engineering – Bone Grafting



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# Thanks for your attention



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the Research Lab (CARL)"*