

ON CLASS ACTIVITY – SCANNING ELECTRON MICROSCOPY (SEM)

- Explain the basic principle of SEM
 - Which are the typical acceleration voltages of the electron beam?
 - How does the acceleration voltage affect the acquired SEM image?
 - Why is it called “scanning” microscopy?
 - What are secondary electrons, and how are they generated?
 - What is the difference between secondary electrons and back scattered electrons?
 - Explain how SEM images are produced?
- What is the resolution of SEM?
- Explain the main differences between SEM and TEM

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- What are the main components of a scanning electron microscope?
- Why is it necessary to adjust the stigmator before acquiring SEM images?
- What is the difference between magnification and resolution?
- Why the sample has to be conducting?
- Describe sample preparation for SEM?
- How can you obtain images of non-conductive samples?
- Describe advantages of SEM
- Describe disadvantages and limitations of SEM

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- What is ESEM?
- What is the difference between image acquisition in ESEM and SEM?
- Describe what is EDS
- How EDS is used in combination with electron microscopy?
- What are the applications of EDS?
- Explain the difference between EDS and XRD