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## **Aberration Correction and STEM – A Revolution in Electron Microscopy**

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# Aberration Correction and STEM – A Revolution in Electron Microscopy

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## Abstract

The correction of lens aberrations is currently one of the hottest topics in the development of electron microscopy instrumentation. The spherical aberration of the objective lens acts as the resolution limit in almost all transmission electron microscopes. In this talk the concepts and instrumentation necessary for the correction of spherical aberration will be introduced.

The Scanning Transmission Electron Microscope (STEM) has many uses in materials science research. When fitted with a High-Angle Annular Dark Field (HAADF) detector and Electron Energy Loss Spectrometer (EELS), such instruments can combine atomic resolution Z-contrast imaging with simultaneous microanalysis at high resolution. Fitting an aberration corrector to a STEM improves the performance by increasing both the resolution and the current available for microanalysis in a given probe size.

This talk will discuss the recent application of an aberration corrector to the 100 kV STEM at Oak Ridge National Laboratory and some of the first applications will be presented.