HESEB for Materials Research

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With the significant contributions of synchrotron systems, scientific research can regulate the existence of processes, and thus technology has advanced to extremely important places in recent years, paralleling the development of both quality data collection stages and sophisticated analysis procedures. It provides high-quality data for high-level scientific inquiry because of the synchrotron facilities' broad and extremely brilliant spectrum. SESAME has developed the potential to respond to the requirements of the region's scientists to a considerable extent with energy.

With the HESEB beamline, it has gained the capacity to respond to the energy range and techniques required for users to a large extent. It will demonstrate the significance of HESEB within the umbrella of SESAME, as well as the significance of future studies in the literature. As a SESAME user, I am certain that the HESEB beamline will supplement my investigations on the XAFS/XRF and MS beamlines with soft x-ray studies.

The HESEB beamline was designed to range the photon energies from about 70 eV to 1800 eV. The XAS technique with soft x-ray range that the HESEB beamline delivers will be my main end-station for my proposals. The XAFS technique that I use is a very good way of probing both the electronic and crystal structures of the interested materials. However, some common elements (B, O, and S) in my interested materials are out of the energy range of the XAFS technique (use > 2 keV). So, these elements became the weakness of my studies, where oxygen or sulfur are located at the link points of the bonds and may provide me with very special information about the electronic structure of the cathode materials. So, with the HESEB beamline, it will be possible for me to collect data from the light elements and lower energy levels of atoms, such as oxygen K-edge and metal L-edge.