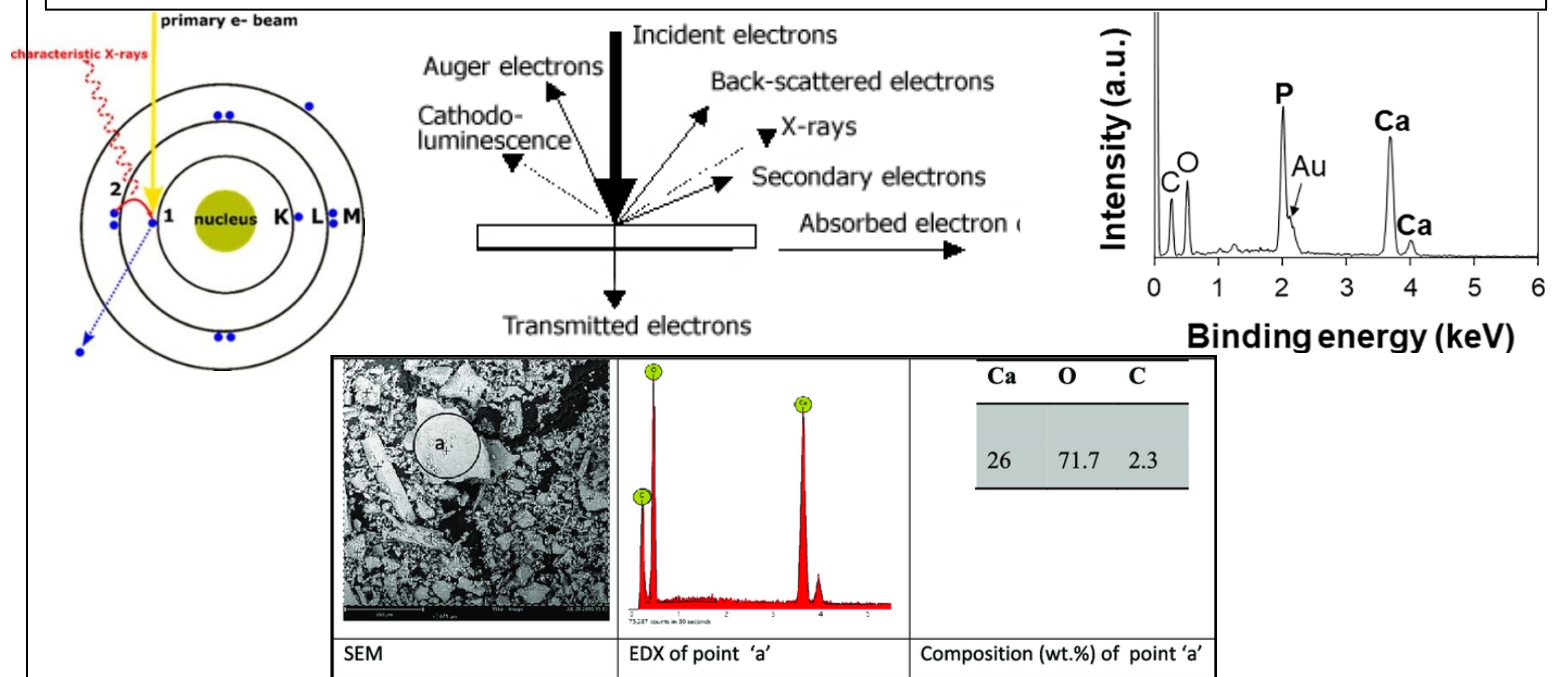
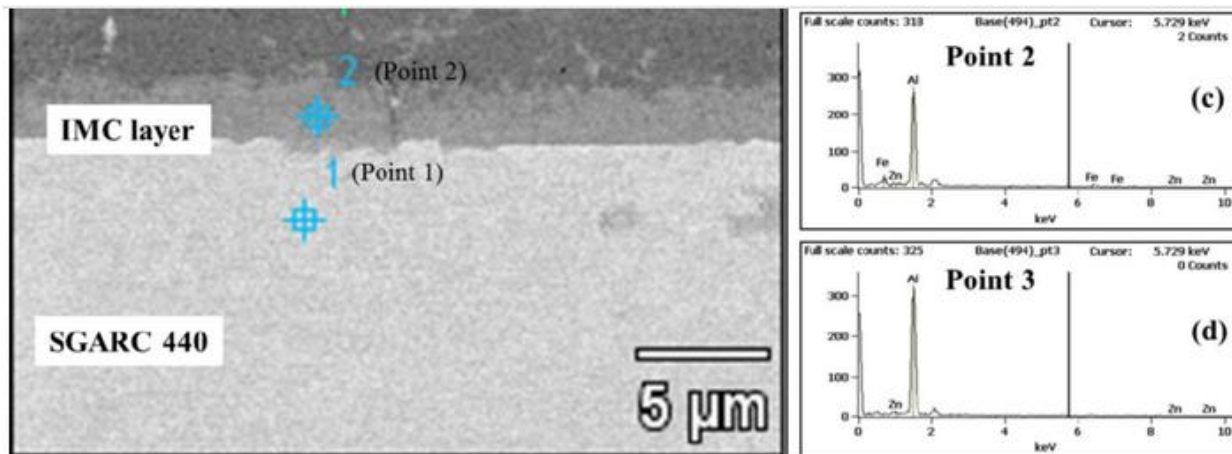


Energy-Dispersive X-ray (EDX or EDS)

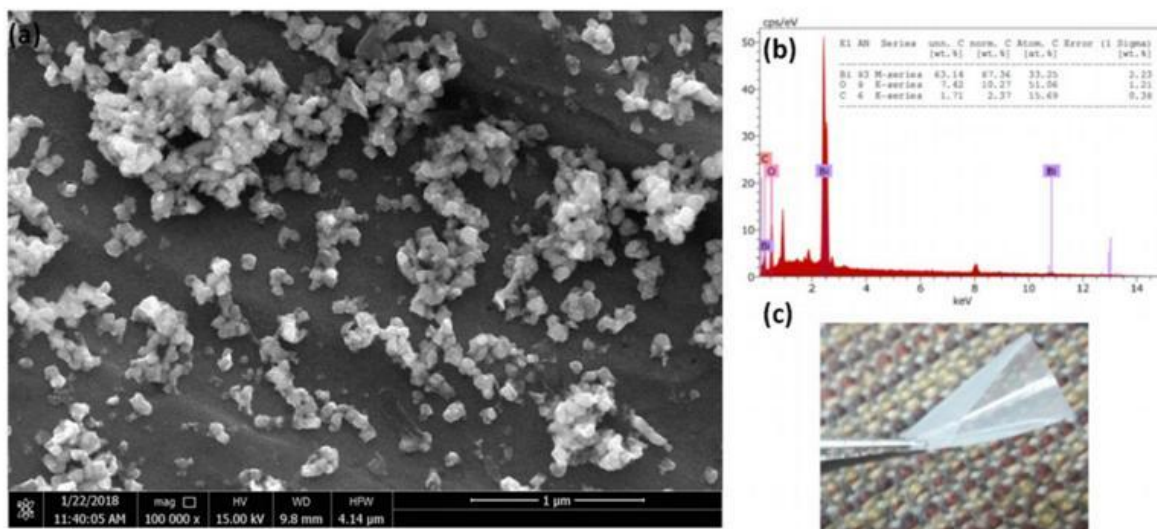
Energy Dispersive Spectroscopy, or EDS, is a Semi-Quantitative method of analysis which measures the elemental constituents of a sample by analyzing the amount of X-Rays produced versus the energy of such X-Rays when a solid sample is irradiated by an electron beam from a Scanning Electron Microscope. The data collected from such analysis may be very helpful in identifying features or phases in various materials.



Determine for each curve *Chemical elements *concentration ratio *Characteristic X-ray energy

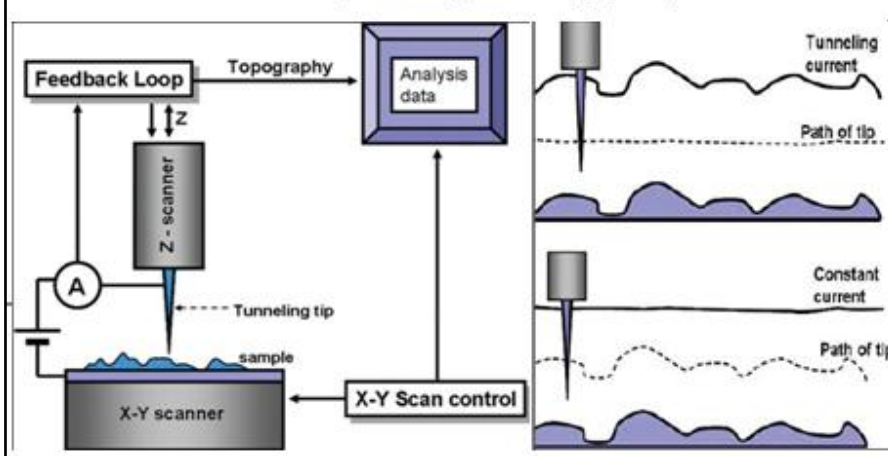


Energy dispersive X-ray spectroscopy (EDS) analysis locations in the welded section: (a) SEM image of dissimilar spot welds of aluminum alloy/zinc-coating steel.; (b) zinc-coating steel base metal point 1; (c) intermetallic compound (IMC) layer point 2; (d) aluminum alloy base metal point 3.

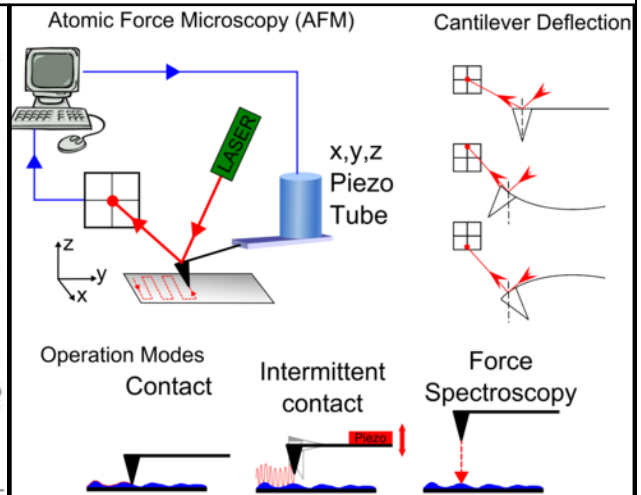


(STM) and the (AFM) Microscopy

Scanning Tunneling Microscopy (STM)



Atomic Force Microscopy (AFM)



IBM scientists discovered how to move and position individual atoms on a metal surface using a scanning tunneling microscope. The technique was demonstrated in April 1990 at IBM's Almaden Research Center in San Jose, Calif., where scientists created the world's first structure: the letters "I-B-M" -- assembled one atom at a time.

