

## **Improving Data Interpretation with AES and XPS**

Dr. Kenneth D. Bomben  
Physical Electronics  
18725 Lake Drive East  
Chanhassen, MN 55317

The detailed analysis of spectra acquired by the surface analysis techniques of Auger Electron Spectroscopy (AES) and X-ray Photoelectron Spectroscopy (XPS) can find significant additional information that is “hidden” within the data. Using mathematical techniques ranging from simple curve fitting to complex linear least squares and target factor analysis, an analyst can extract information on multiple chemical states, remove interferences, enhance the energy resolution, improve the signal-to-noise ratio and clarify the quantification of the elements present. In addition to improving the chemical information, physical information such as a film or overlayer thickness can be obtained from the proper manipulation of the data.

A series of examples will be given demonstrating the efficacy of these methods with particular attention given to the improvement in reliability that results from enhancing the energy resolution using post-acquisition processing.