

Innovative Methodology for XPS Spectra Collection

ID: 2024-053

Executive Statement:

This technology introduces advanced techniques for X-ray photoelectron spectroscopy (XPS) data acquisition and analysis, enhancing spectral quality and resolution.

Technology Overview:

The technology outlined presents a novel approach for collecting XPS spectra, employing methods such as 'variable signal, constant time' and 'constant signal, variable time' to improve data specificity and quality. It incorporates the use of a Gauss-Hermite filter for noise reduction and applies true deconvolution techniques for spectral resolution enhancement. Additionally, it addresses the legal and procedural aspects related to patent filing and intellectual property management.

Key Advantages:

- Improved XPS data quality and specificity through adaptable acquisition parameters
- Effective noise reduction using the Gauss-Hermite filter without compromising spectral features
- Enhanced spectral resolution through true deconvolution, facilitating better quality control in industrial settings
- Comprehensive integration of legal and procedural guidance for patent enforceability and intellectual property management

Problems Addressed:

- Reduction of data noise without loss of critical spectral information
- Improvement of low-resolution XPS spectra to high-resolution
- Addressing the need for detailed patent descriptions to ensure enforceability

Market Applications:

- Quality control in manufacturing and materials science industries
- Academic and industrial research requiring precise XPS analysis
- Intellectual property management and patent filing processes