TF-P094

The Calibration of the Emission Angle in AR-XPS for Depth Measurements via Computer Simulations

Seung Mi Lee and Kyung Joong Kim

Korea Research Institute of Standards and Science, Daejeon 305-340, Korea

The thickness measurement of nanometer oxide films has been a key issue in the next generation semiconductor process as the size of the packaged device has been lowered as 22 nm. Angle-resolved X-ray photoemission spectroscopy (AR-XPS) has been considered as the most suitable tool for the exact thickness measurement of thin-film even under 1 nm. However, in this presentation, we will show that the current conventional thickness measurement by AR-XPS includes a large uncertainty value, since the electron emission angle is biased from the setting angle due to the solid angle. We suggest a new calibration method of the emission angle depending on the solid angle from a numerical analysis using computer simulations.