

## When thin film meets microscopy: some of the recent results of NSRRC SPEM

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Photoemission spectroscopy (PES) is always a powerful spectroscopic technique to determine the semiconductor homojunction/heterojunction band alignment. Traditionally, it requires three samples with different overlayer thicknesses to obtain the band discontinuity by this method. But since PES is a surface sensitive tool, to prepare perfect surface condition for all these surfaces is not always an easy task. Recently, by utilizing SPEM, we have directly visualized the valence band discontinuity on cleavage surfaces in cross-sectional geometry. With this approach, the semiconductor band alignment can be easily determined by PES.