Enhanced Resolution In Plane Grazing Incidence Diffraction

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In recent years, in plane grazing incidence diffraction has joined the toolbox of the lab based diffractometer. The traditional lab based solution based on a line focused mirror coupled with an equatorial soller results in a measurement with good depth resolution due to the small divergence of the mirror, but poor resolution in the equatorial direction due to the use of soller slits with large acceptance angles. By coupling a microfocus source with a montel optic, a beam is created with very low divergence in both the depth and equatorial directions, resulting in a measurement with superb depth and equatorial resolution. Measurements on single crystal substrates and films ranging from polycrystalline to epitaxial order will be presented.