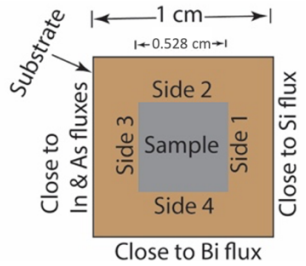


Fig. 1: Schematic of sample (top view of in-plane GPM sample). The sides indicate the elemental cells they face during the growth of the film.

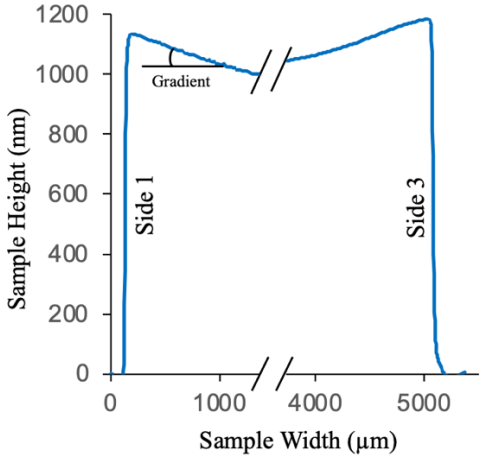


Fig. 2: Surface profile of in-plane GPM sample in the direction of side1 to side3. This figure represents the thickness gradient of the sample. The thickness gradient gives rise to composition gradient, which in turn gives rise to doping gradient leading to permittivity gradient in the sample.

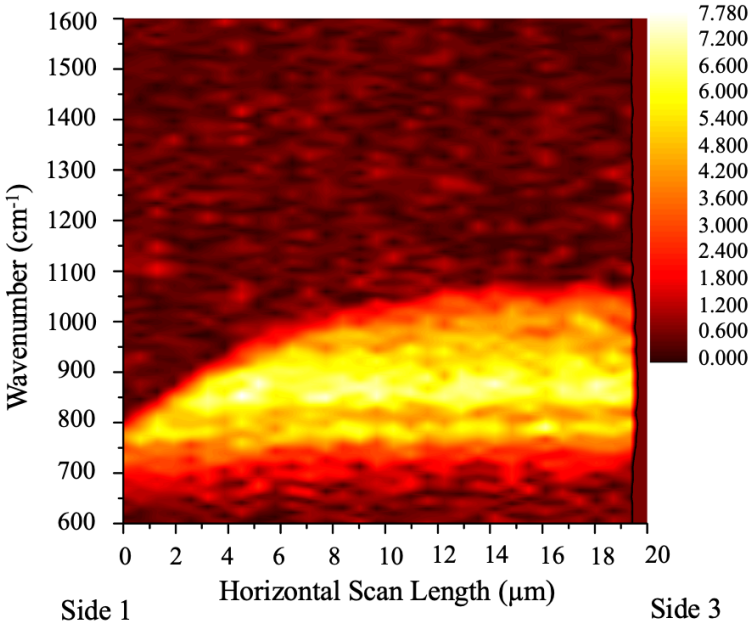


Fig. 3: Characterization by s-SNOM (scattering-type scanning near-field optical microscopy) using mid-IR light source on in-plane GPM. This figure illustrates that the GPM confines different wavelengths of light (corresponding to the gradient in wavenumber) with respect to distinctive in-plane positions in the GPM.