

An overlay of the temperature profile and the stress data for the quartz-substrate sample that was held at 140° C is shown below in Fig. S1.

Previous work demonstrates that the roughness of LiPON films never exceeds twice that of the underlying substrate.[47] Given that the quartz glass and sapphire substrates have an average roughness (Ra) of less than 0.3 nm, the expected roughness of LiPON films would be between 0.3 to 0.6 nm. While we do not have absolute roughness measurements from techniques such as AFM, our observations from the SEM 3-D reconstructed surface profile (Fig. S2) indicate a smooth surface. We can infer an upper bound of Ra < 10 nm for the as-deposited film.

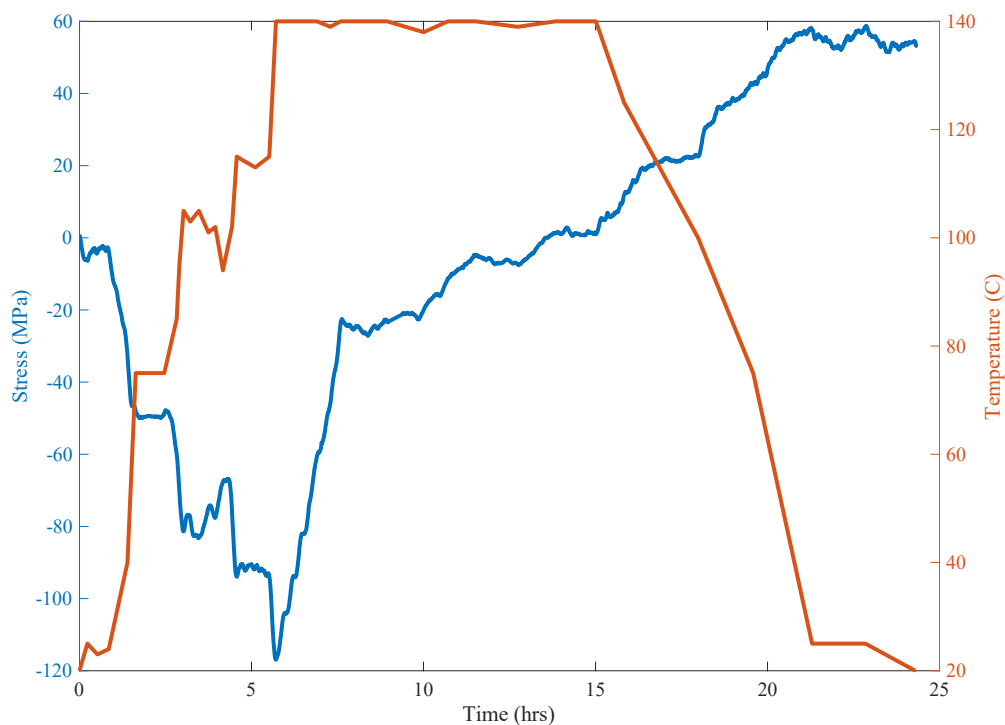


Figure S1 The in-situ stress measurements by HTMOSS for a quartz substrate sample is overlaid with the temperature profile during this period. The noisy features in the stress values are directly correlated with the temperature variations.

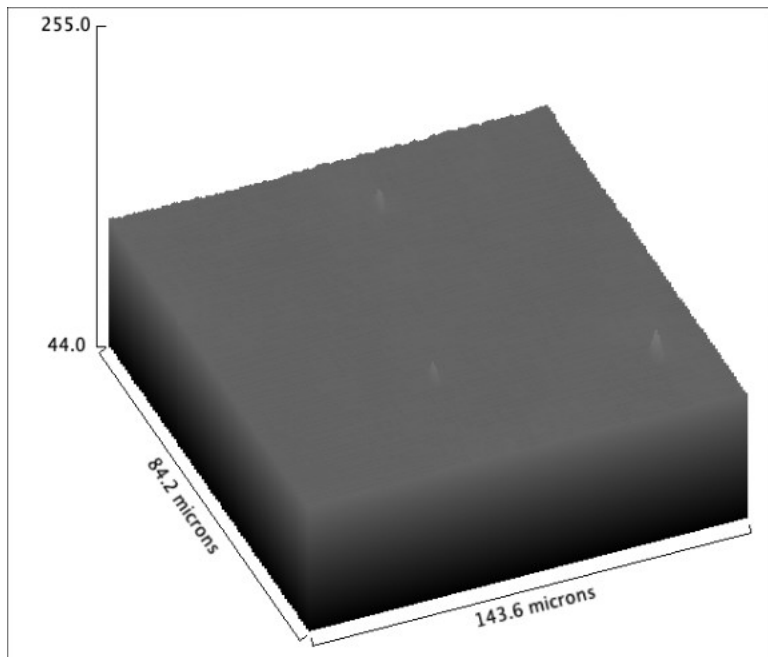


Figure S2 The surface profile of the film from 3-d reconstructed SEM image