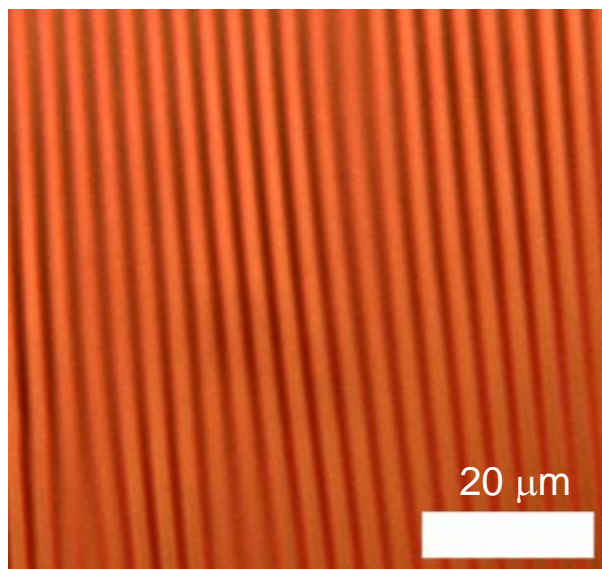
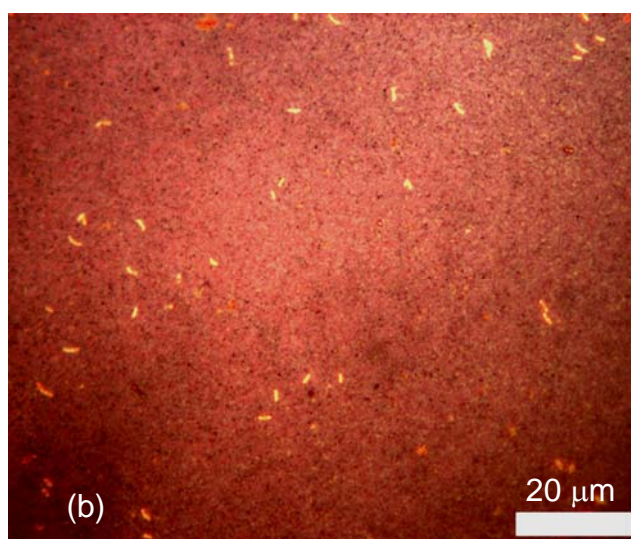
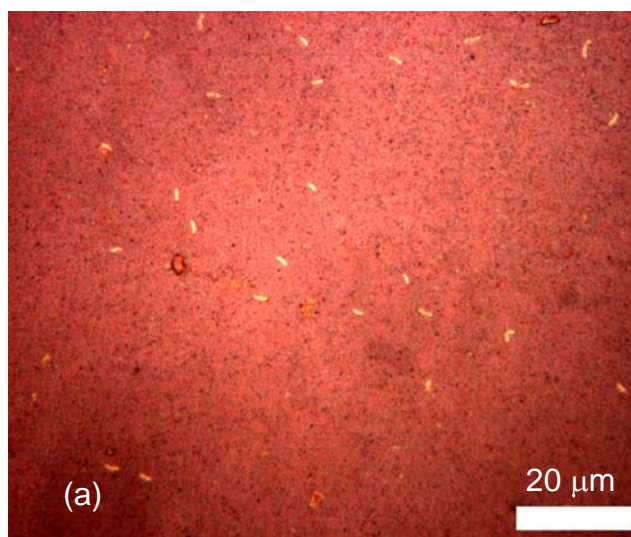


SI 1: Optical microscope image a micro-crack in a (PAH/PAA)_{5.5} film. Compressive stress is released at the film crack and affected the film buckling morphology for $\sim 15 \mu\text{m}$.



SI 2: Optical microscope image of the manually compressed $(\text{PDAC/SPS})_{20}$ film. The average wavelength was found to be $3.26 \mu\text{m}$.



SI 3: Optical microscope images of the composite nanoparticle/polyelectrolyte film, (PDAC/SiO₂ (PDAC/SPS)₄)₄. a) before and b) after thermal processing. The addition of nanoparticles alleviates the compressive stress and prevents buckling.