Electronic Supplementary Material (ESI) for CrystEngComm.

Electronic Supplementary Information

Preparation of Citric Acid-Modified Poly(vinyl alcohol) Films for Effectively Precipitating Calcium Phosphate Particles

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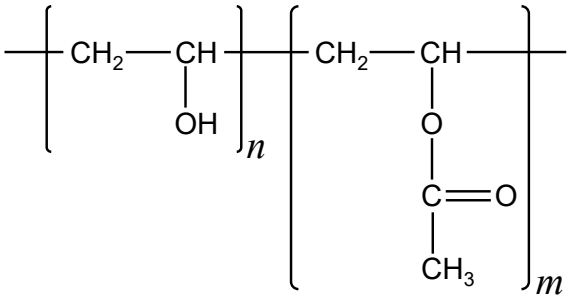
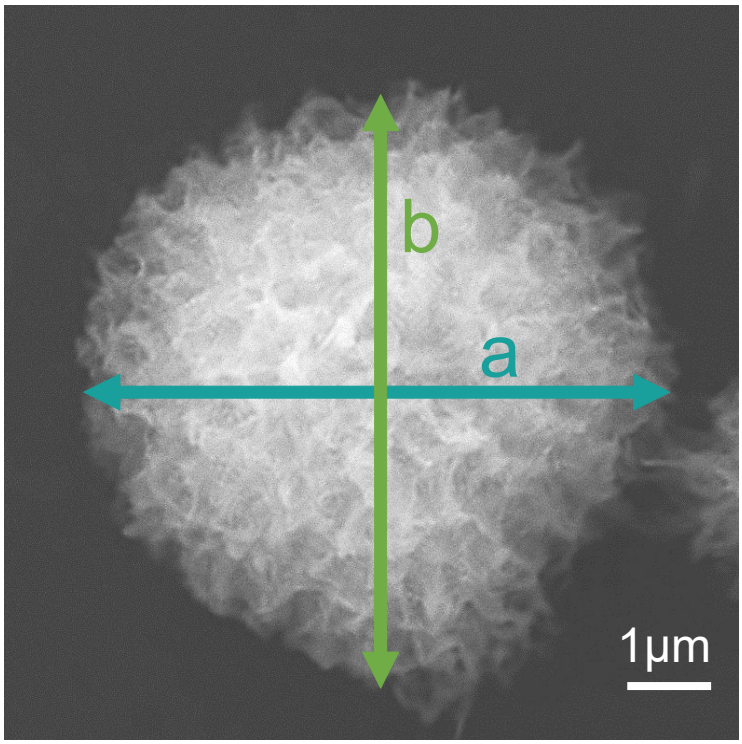
Scheme S1



Scheme S1. Illustration of the chemical structure of PVA used in this study, where the averaged polymerization degree (*n*+*m*): 900~1000, saponification (*n* / (*n*+*m*)): > 96.0 mol%.

Scheme S2



Scheme S2. Illustration for the calculation of the particle size. The diameter of a particle is equal to the average size between a and b. Two hundred particles were selected from each film and the average particle size was calculated.

Figure S1

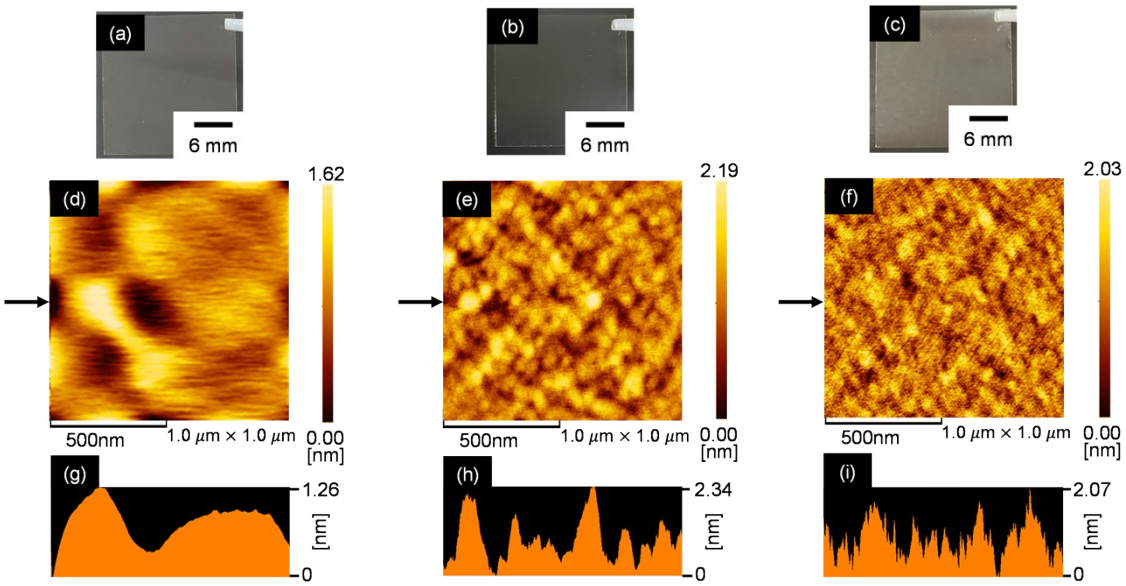


Figure S1. Representative (a~c) photographs, (d~f) AFM topographic images of (a, d) PVA, (b, e) PVA-CA, and (c, f) PVA/**18**CA films, where (g~i) the height profiles of the cross sections taken along with the direction of black arrows for (d~f) were shown.

Figure S2

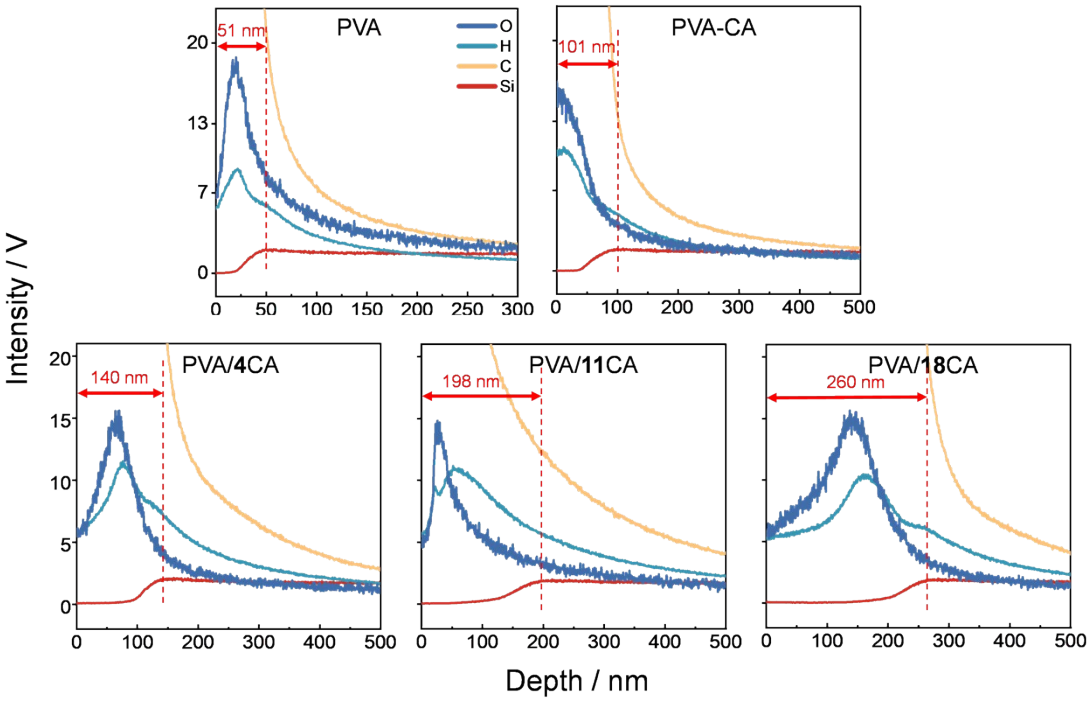


Figure S2. Depth profiles of PVA, PVA-CA, PVA/**4**CA, PVA/**11**CA and PVA/**18**CA films. The depth profiling of the elements (O, H, Si, C) was characterized using a glow discharge optical emission spectrometry (GD-OES; GD-Profiler2, HORIBA Ltd.), where the samples were used as a cathode in a direct current plasma.

Figure S3

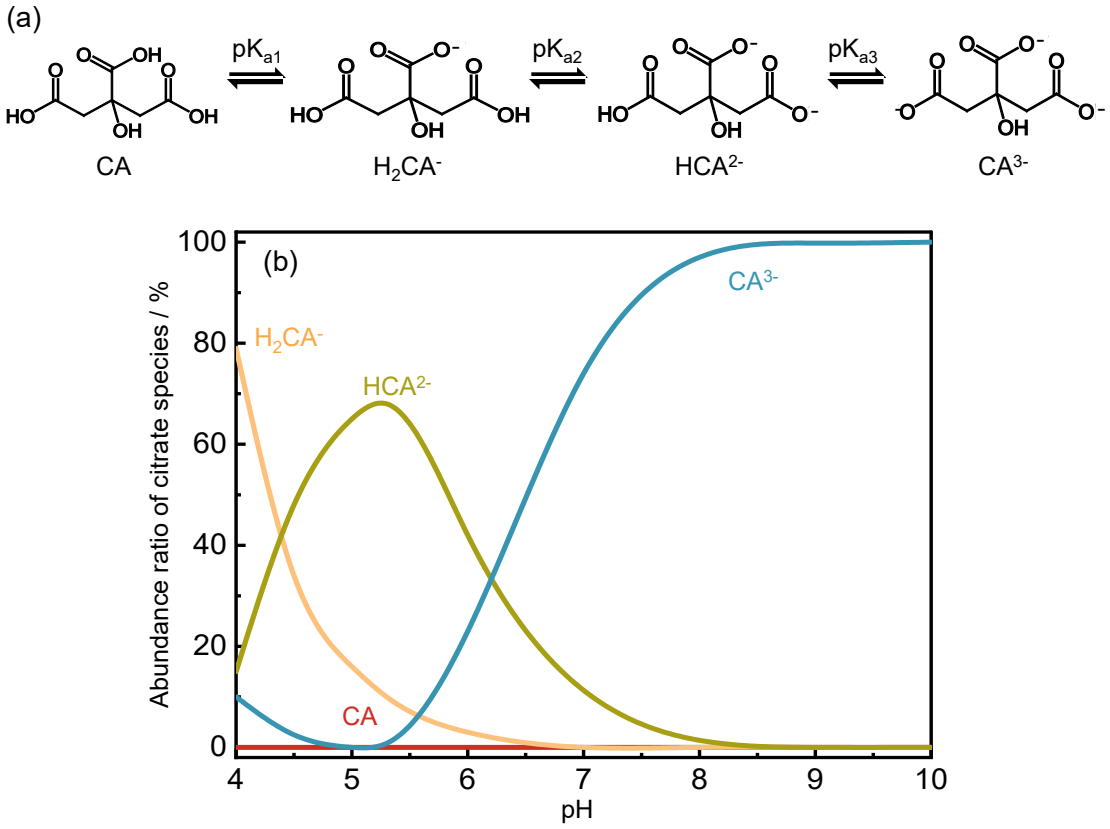
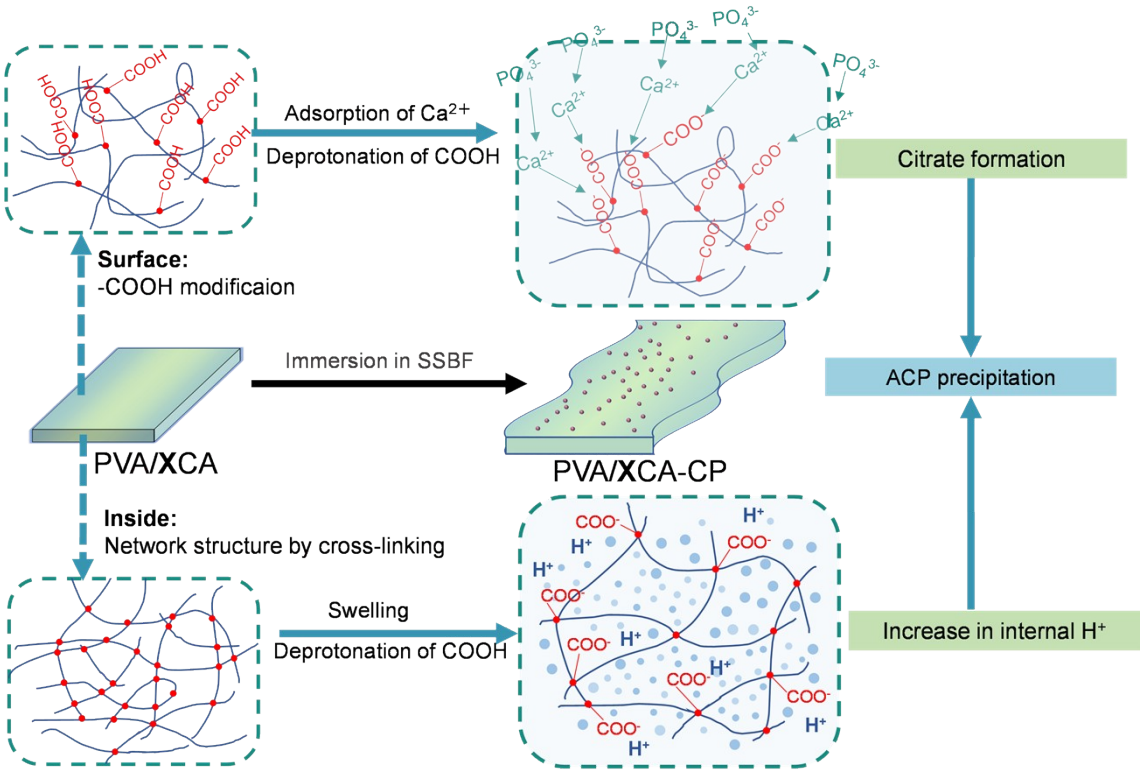


Figure S3. (a) Illustration of the dissociation state changes of CA with the pKa values of 3.1, 4.7 and 6.4, respectively. (b) Abundance ratios of CA species at different pH values.

Scheme S3



Scheme S3. Illustration of the mechanism of ACP precipitation on PVA/CA films.

Figure S4

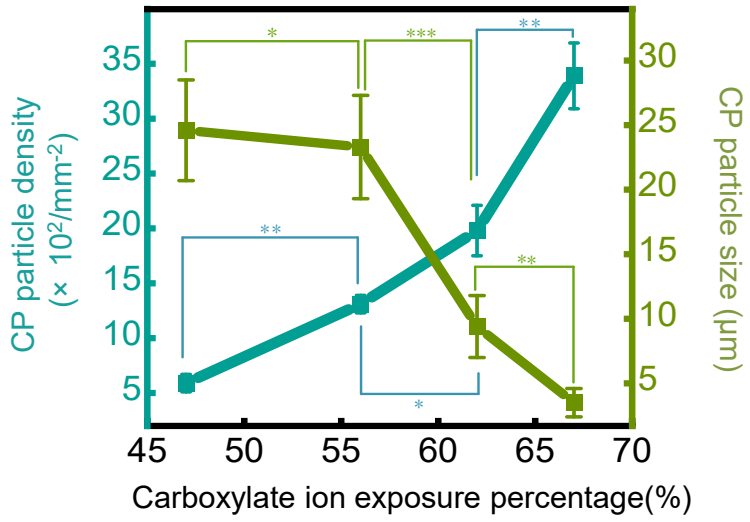


Figure S4. The densities and sizes of the precipitated CP particles with changing the carboxylate ion exposure percentages. The student's *t*-test results were represented as $p>0.10$ (n.s.), $p<0.10$ (*), $p<0.05$ (**) and $p<0.01$(***).