

### Supplementary Information

#### Enhanced Dielectric Properties of Sol-gel-BaTiO<sub>3</sub>-P(VDF-HFP) Composite Films Without Surface Functionalization

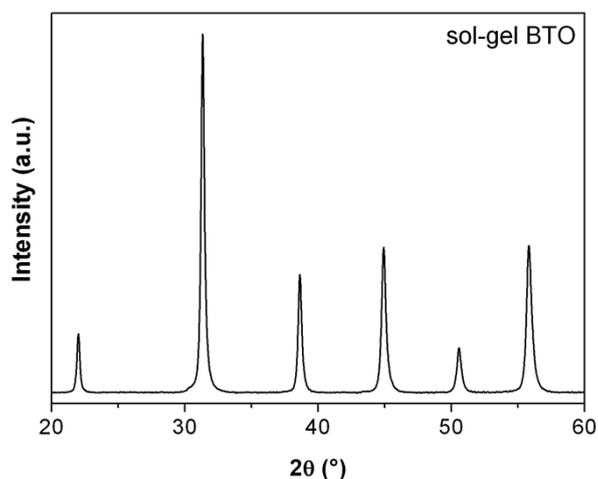


Figure S1. XRD pattern of BTO obtained by the sol-gel synthesis.

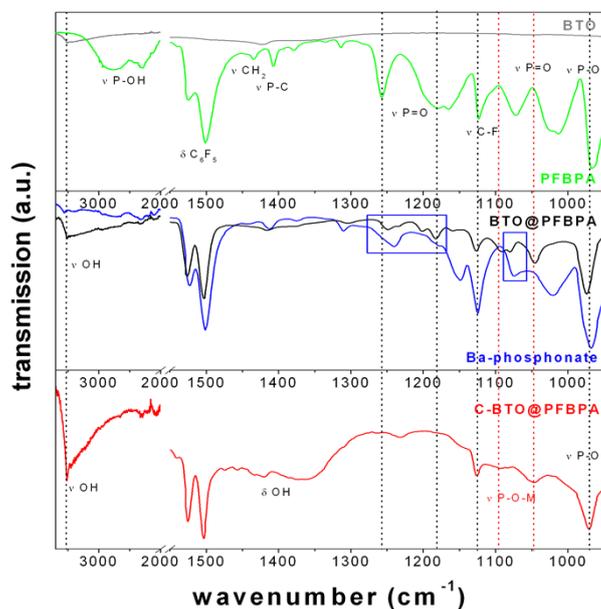
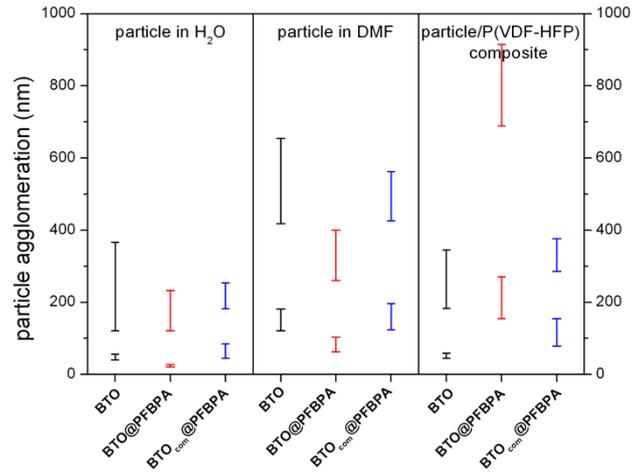


Figure S2. FT-IR spectra of pure BTO and PFBPA (top) as well as the surface-modified BTO@PFBPA and isolated Ba-phosphonate byproduct (middle) and the purified C-BTO@PFBPA (bottom).



**Figure S3.** Particle agglomeration determined by DSL of pure sol-gel synthesized BTO, surface modified BTO@PFBPA and surface modified commercially available nanopowders BTO<sub>com</sub>@PFBPA (Sigma-Aldrich Barium titanate(IV) nanopowder, < 100 nm particle size according to BET) dispersed in water (left), DMF (middle) and in the polymer composite suspension (right). Bars represent the variation of particle/aggregate sizes.