**Supramolecular Approach to Organic Ferroelectrics**

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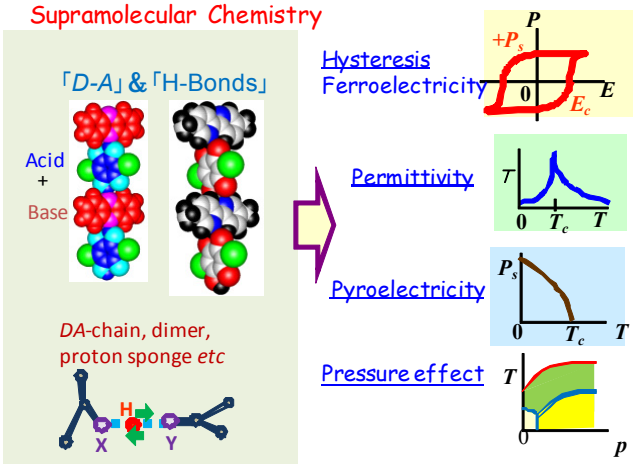
Organic ferroelectrics are multifunctional candidates as future organic electronic and optical devices. In spite of their potential, there were very few examples so far. Recently, acid-base supramolecular synthesis has succeeded in ferroelectricity and much improved the performance such as permittivity and spontaneous polarization compared with those of the conventional low-molecular-mass organic ferroelectrics. Moreover, operation field of ferroelectricity ($E_c$) has been reduced by 2-3 orders of magnitude from those of polymer ferroelectrics. [1]. Here we show recent progress in developing organic ferroelectrics.




The supramolecular ferroelectrics were mostly obtained as linear-chain hydrogen- bonded cocrystals of 2,5-dihydroxy-*p*-benzoquinones ($H_2$xa) with various bases such as phenazine (Phz) and 2,2'-bipyridine (22bpy) derivatives (Fig. 1). In this presentation, we demonstrate various interplays between the dynamics of acidic protons and ferroelectricity.

**Figure 1** Schematic illustrations of supramolecular ferroelectrics and properties.

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[1] S. Horiuchi and Y. Tokura, *Nature Mater.* **7** (2008) 357.