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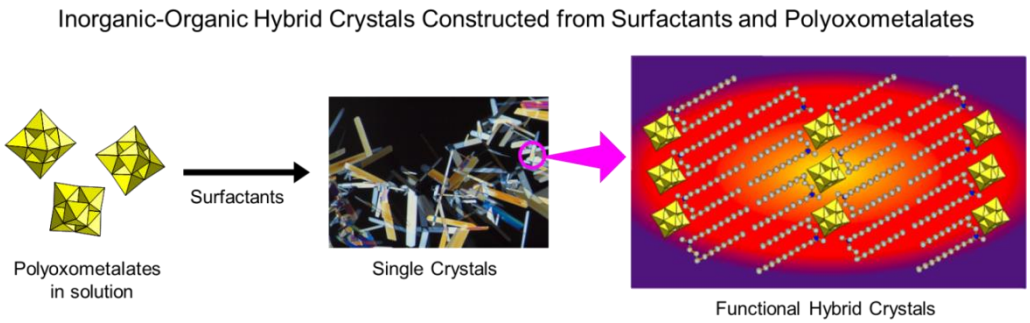
Hybridization of inorganic and organic components have potential for the construction of functionalized crystalline materials. We can expect synergy of the merits derived from the both components, and polyoxometalate cluster anions are promising candidates as inorganic components to construct functional hybrid materials. We have synthesized several polyoxometalate hybrids by using structure-directing surfactants to obtain inorganic-organic functional crystals [1]. The polyoxometalate-surfactant hybrid crystals enable fine tuning of the structure and function by changing the combination of polyoxometalate anion and surfactant cation. Some of them exhibit electronic and proton conductivities [2]. The introduction of metal cations into such hybrid crystals can provide functions such as ionic conductivity and ion-exchanging property [3]. Recently, newly designed polymerizable ionic-liquids have been successfully hybridized with Keggin-type anions and octamolybdates to form inorganic-organic hybrid monomers and polymers [4]. Possible collaboration will be to provide our hybrid materials for the evaluation of ionic conductivity, chromic property, and redox catalysis.



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