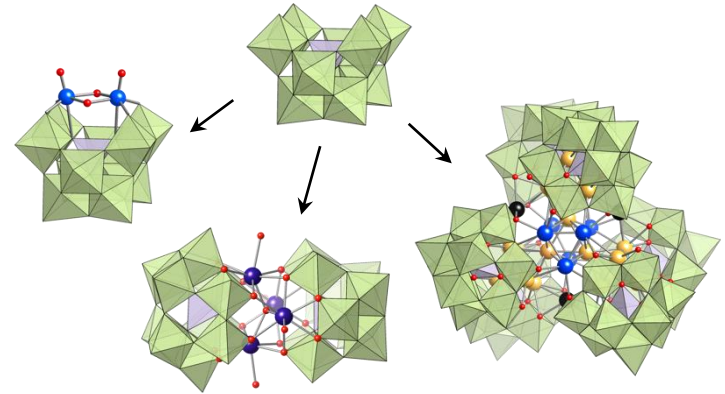
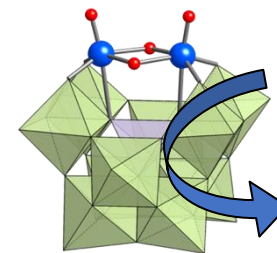


The purpose of this study is to develop polymers that have both multi-lock degradation mechanism and toughness in ocean. In order to realize the multi-lock degradation, it is important to introduce a new mechanism that can quickly decompose polymers when they flow out into ocean although they are stable under usage environment. By utilizing our synthesis methods of metal oxide clusters, we will develop catalysts that exhibit degradation activity when two or more of the stimuli, such as light, heat, oxygen, water, salts, enzymes, microorganisms, are present at the same time, and use these catalysts to perform on-demand degradation of polymers.

Design of metal oxide cluster catalysts



Development of multi-lock mechanism



stimulus 1
+
stimulus 2

degradation activity