Title:	Interconnectivity between Surface Reactivity and Self-Assembly of Kemp Elimination Catalyzing Nanorods
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Abstract:	Understanding the fundamental facts behind dynamicity of catalytic processes has been a longstanding quest across disciplines. Herein, we report self-assembly of catalytically active gold nanorods that can be regulated by tuning its reactivity towards a proton transfer reaction at different pH. Unlike substrate-induced templating and co-operativity, the enhanced aggregation rate is due to alteration of catalytic surface charge only during reactivity as negatively charged transition state of reactant (5-nitrobenzisoxazole) is formed on positively charged nanorod while undergoing a concerted E2-pathway. Herein, enhanced diffusivity during catalytic processes might also act as an additional contributing factor. Furthermore, we have also shown that nanosized hydrophobic cavities of clustered nanorods can also efficiently accelerate the rate of an aromatic nucleophilic substitution reaction, which also demonstrates a catalytic phenomenon that can lead to cascading of other reactions where substrates and products of the starting reactions are not directly involved.
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