

Publication

Advantages of Catalysis in Self-Assembled Molecular Capsules

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Control over the local chemical environment of a molecule can be achieved by encapsulation in supramolecular host systems. In supramolecular catalysis, this control is used to gain advantages over classical homogeneous catalysis in bulk solution. Two of the main advantages concern influencing reactions in terms of substrate and product selectivity. Due to size and/or shape recognition, substrate selective conversion can be realized. Additionally, noncovalent interactions with the host environment facilitate alternative reaction pathways and can yield unusual products. This Concept article discusses and highlights literature examples utilizing self-assembled molecular capsules to achieve catalytic transformations displaying a high degree of substrate and/or product selectivity. Furthermore, the advantage of supramolecular hosts in multi-catalyst tandem reactions is covered.

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