Upsurge in the construction of chiral nanomaterials

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Owing to its fast development, chiral nanoscience has become one of the core research topics in chemistry, physics, medicine and materials science. Recently, many efforts have been focused on constructing new types of chiral nanomaterials with unique optical activity. This themed issue highlights the state-of-the art progress in this field, based on a series of invited and selected articles published in Chemical Science. These articles cover diverse nanomaterials, including organic, inorganic, organic–inorganic hybrid and superstructured nanomaterials. The details based on the composition are as follows:


On the topic of organic–inorganic hybrid nanomaterials, Shu Kobayashi prepared heterogeneous Rh and Rh/Ag bimetallic nanoparticle catalysts immobilized on chiral polymers with high-to-excellent yields and enantioselectivities (DOI: 10.1039/C9SC02670C). Xiaogang Qu fabricated a series of stereoselective nanozymes Fe3O4@poly(AA)) using a ferromagnetic nanoparticle yolk as the catalytic core and amino acid-appended chiral polymer shell as the chiral selector (DOI: 10.1039/D0SC03082A). Yongsheng Zhao, Chuanlang Zhan, Jian-nian Yao and coworkers reported lanthanide MOFs for inducing the molecular chirality of achiral stilbazolium with strong circularly polarized luminescence and efficient energy transfer for color tuning (DOI: 10.1039/D0SC02856H).

On the topic of superstructures, Zeyuan Dong constructed a helical supramolecular polymer nanotube by manipulating strong noncovalent interactions (DOI: 10.1039/C9SC02336D). De-Liang Long, Leroy Cronin and coworkers...

The above articles and reviews provide a complete picture of the construction of various chiral nanomaterials. We hope that the readers will quickly grasp the entire concept of this field with the help of this themed issue.