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Research Interests

Nanomaterial /Nanotechnology
Polymer science
Nanocomposite

Representative Publications

J. Wang, S-W Hsu, N. Gonzalez-Pech, A. Jhunjhunwala, F. Chen, A. Hariri, V. Grassian, A. Tao, and J. Jokerst, "Copper Sulfide Nanodisks and Nanoprisms for Photoacoustic Ovarian Tumor Imaging" 2019, Particle & Particle Systems Characterization, 190017

S-W. Hsu, and T. Xu, "Tailoring Co-assembly of Nanodiscs and Block Copolymer-Based Supramolecules by Manipulating Interparticle Interactions" Macromolecules, 2019, 52, 7, 2833-2842

H. Qian, ‡ S-W. Hsu, ‡ K. Gurunatha, C. T. Riley, J. Zhao, D. Lu, A. R. Tao, and Z. Liu, "Efficient

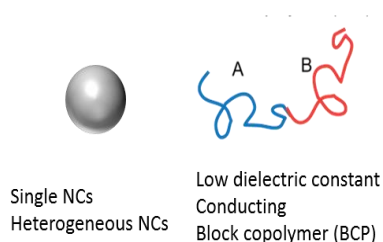
light generation from enhanced inelastic electron tunneling" Nature Photonics, 2018, 12, 485-488 (‡These authors contributed equally to this work.)

S-W. Hsu, A. L. Rodarte, M. Som, G. Arya, and A. R. Tao, "Colloidal Plasmonic Nanocomposites: From Fabrication to Optical Function" Chemical reviews, 2018, 118 (6), 3100-3120

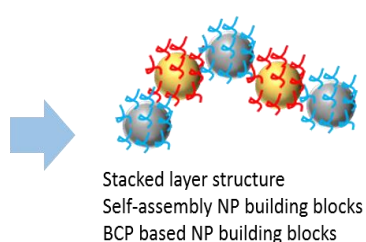
S-W. Hsu, and A. R. Tao, "Halide-Directed Synthesis of Square Prismatic Ag Nanocrystals by the Polyol Method" Chemistry of Materials, 2018, 30 (14), 4617-4623

S-W. Hsu, Y. Long, A G Subramanian, and A. R. Tao, "Directed assembly of metal nanoparticles in polymer bilayers" Molecular Systems Design & Engineering, 2018, 3 (2), 390-396

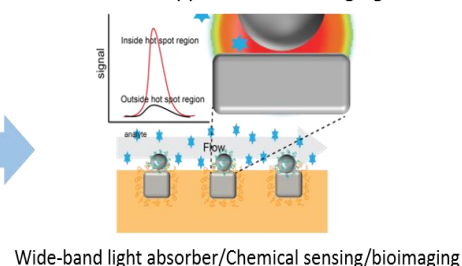
I. Nanocrystal / Polymer



II. Nanocomposite

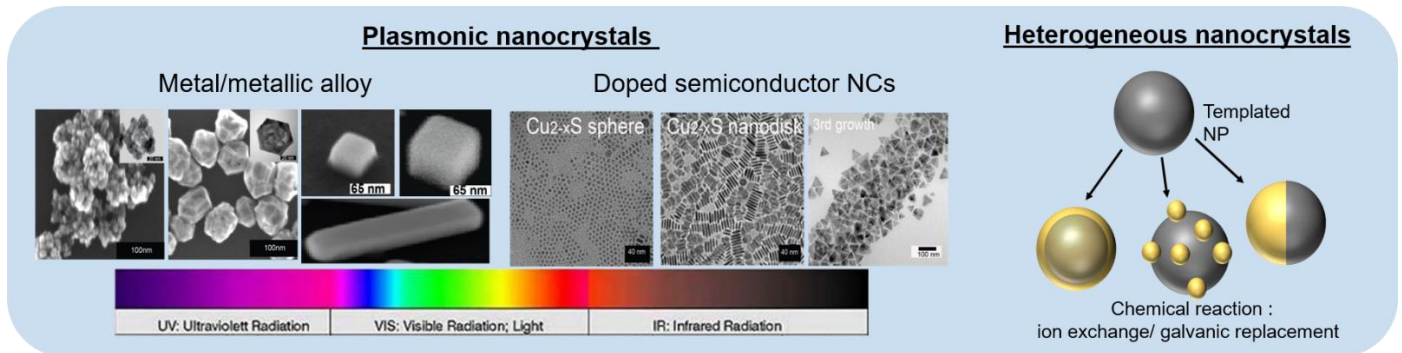


III. Potential application: bioimaging



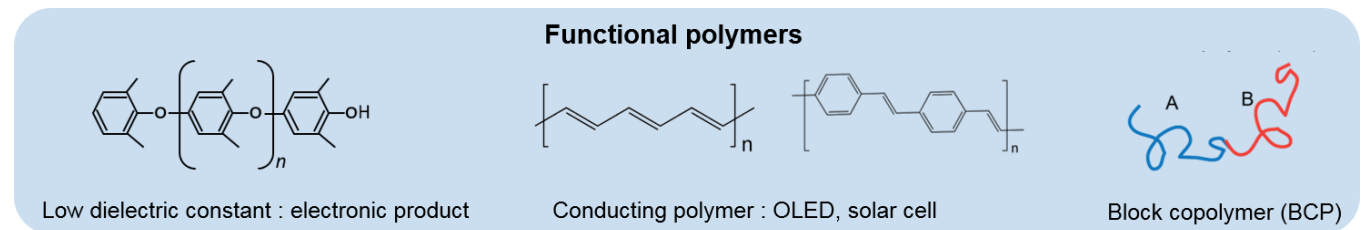
Synthesis novel functional nanocrystals (NC)

Inorganic NCs, such as noble metal, semiconductor, dielectric, magnetic, and their heterogeneous NCs, have attracted enormous of interest resulting from their unique properties (electric, optical, and magnetic) strongly depended on size, shape of NCs. The design of sophisticated heterogeneous nanocrystals provides a pathway for controlling more complex multifunctional nanomaterials for desired applications.



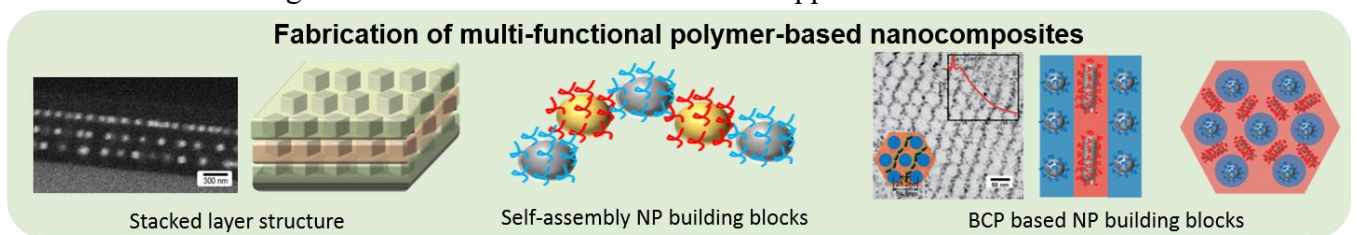
Synthesis functional polymer

The properties of polymers can be manipulated by precise design their molecular structures which results in potential applications from biomedical through, copper clad laminate in electronic products, and optical device (OLED and organic polymer solar cells) etc.



Fabrication polymer based heterogeneous nanomaterials

Development of facile techniques for building special functional nanocomposite by integration multi-function of inorganic NCs meets the fundamental and applied interests.



Application of heterogeneous nanomaterials

Manipulating the properties of heterogeneous nanomaterials can be achieved by integrating and/or coupling the properties of individual material within heterogeneous nanomaterials.

