

## Poly(ionic Liquid)s Modified Magnetic Janus Particles for Dye Degradation

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The  $\text{Fe}_3\text{O}_4@\text{SiO}_2$  paramagnetic Janus particles with phenyl groups and amino groups segmented on two different sides were fabricated by Pickering emulsion method. Then, the poly(ionic liquid)s were selectively modified onto the amino side via *in-situ* induced ATRP polymerization. Different anions were introduced onto the poly(ionic liquid)s region by exchanging anions to adjust the wettability of the side, respectively. Meanwhile, after the  $\text{PW}_{12}\text{O}_{40}^{3-}$  anions were employed, the poly(ionic liquid)s modified  $\text{Fe}_3\text{O}_4@\text{SiO}_2$  Janus particles can be used as a catalytic solid emulsifier and degraded water soluble dyes with the aid of stable emulsion. The  $\text{PW}_{12}\text{O}_{40}^{3-}$  based poly(ionic liquid)s modified  $\text{Fe}_3\text{O}_4@\text{SiO}_2$  Janus particles can adsorb methyl orange to the poly(ionic liquid)s region and degraded products transferred into the oil phase in the emulsion system. Janus particles can be recovered rapidly by magnetic field and washed with ethanol and water replaced organic reagents to avoid environmental pollution. The poly(ionic liquid)s modified Janus particles exhibited advantages in decomposition of methyl orange with short time and high efficiency, which were expected to have broad applications in heterogeneous decomposition of water soluble dyes.

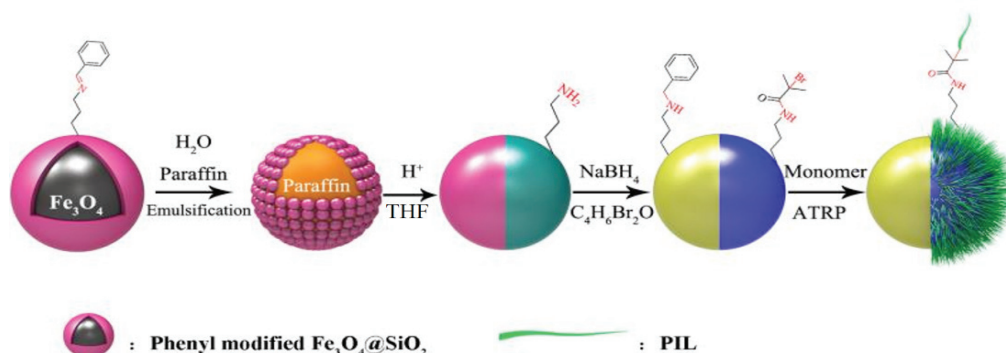


Illustration synthesis of the poly(ionic liquid)s modified magnetic Janus particles. The hydrophobic phenyl modified  $\text{Fe}_3\text{O}_4@\text{SiO}_2$  magnetic particles are used to stabilize the emulsion and form single layer at the oil-water interface. Janus particles are fabricated after the side in the aqueous phase is converted to amino groups. Following, the amino side is selectively modified with poly(ionic liquid)s to achieve poly(ionic liquid)s modified Janus particles.

### Biography:

Professor Zhengping Liu has been working in College of Chemistry, Beijing Normal University. He finished his B.Sc. in 1987 and M. Sc. in 1990 and he finished his Ph. D. in 1993 at Department of Chemistry, Jilin University, China. From 1993-1995 he pursued as Postdoc in Department of Chemistry, Peking University at China. From 1995-1996 he worked as Assistant Professor, 1996-2001 as Associate Professor and 2001-present has been Full Professor in Department of Chemistry, Beijing Normal University at China. In 2001 he worked as Visiting Scholar in Department of Chemistry, University of California at Berkeley at United States. His research interest is environmentally friendly polymer and functional polymer. He has published more than 100 papers and applied 16 patents. He received an award for National Excellent Science and Technology Researchers in 2014.