Metal-free Polymeric MRI Contrast Agents

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Magnetic resonance imaging (MRI) is an important imaging technology widely employed in modern diagnosis. In clinical settings, gadolinium-based MRI contrast agents are commonly used to enhance imaging contrast in MRI scans. However, these metal-based contrast agents have been reported to associate with some potential toxic effects, raising safety concerns. In this presentation, I will introduce our recent work on developing metal-free polymer-based MRI contrast agents, particularly the utilisation of fluorinated polymers for ^{19}F MRI applications. Specifically, I will talk about how chemical design can be implemented to overcome the inherent hydrophobicity and strong tendency of aggregation of fluorine, and to develop innovative fluorinated polymers with enhanced ^{19}F MRI sensitivity for more promising biomedical applications.