

Polaron Activation in Conjugated Polymers for Enhanced T₂ MRI Contrast

Yifei Song^{1, 2}, Qinrui Lin^{1, 3*} and Zhengzhong Shao^{1, 2, 3*}

¹State Key Laboratory of Molecular Engineering of Polymers, Fudan University, Shanghai, China.

²Department of Macromolecular Science, Fudan University, Shanghai, China.

³Laboratory of Advanced Materials, Fudan University, Shanghai, China.

*e-mail: zzshao@fudan.edu.cn; qrlin17@fudan.edu.cn

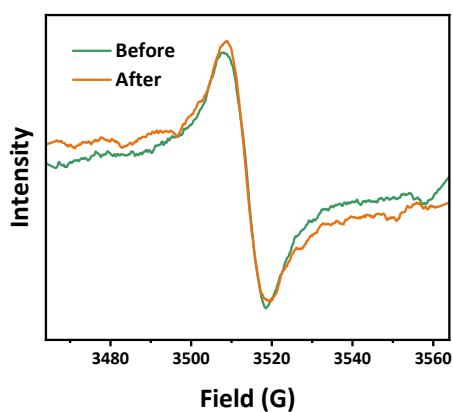


Fig. s1 ESR spectra of the PPy nanoparticles treated before and after acid treatment.

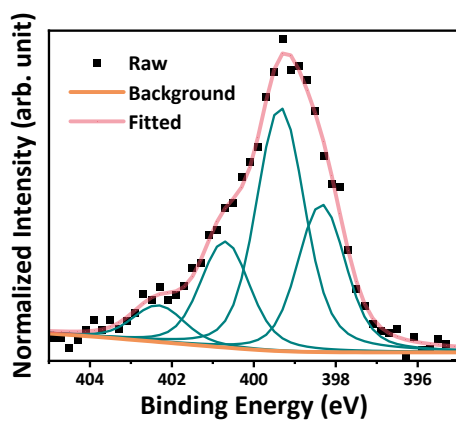


Fig. s2 Peaking fitting analysis of the N 1s region of the acid treated PPy nanoparticles

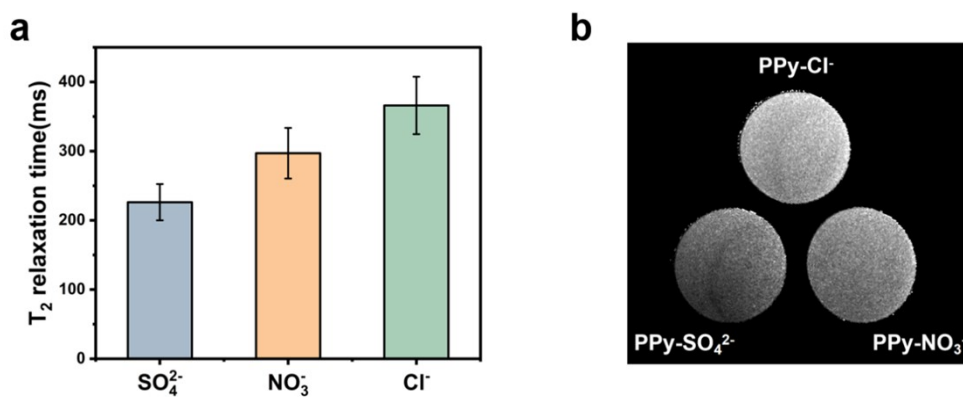


Fig. s3 (a) T_2 relaxation times and (b) T_2 -weighted imaging data of the PPy nanoparticles prepared with different complexion ions.

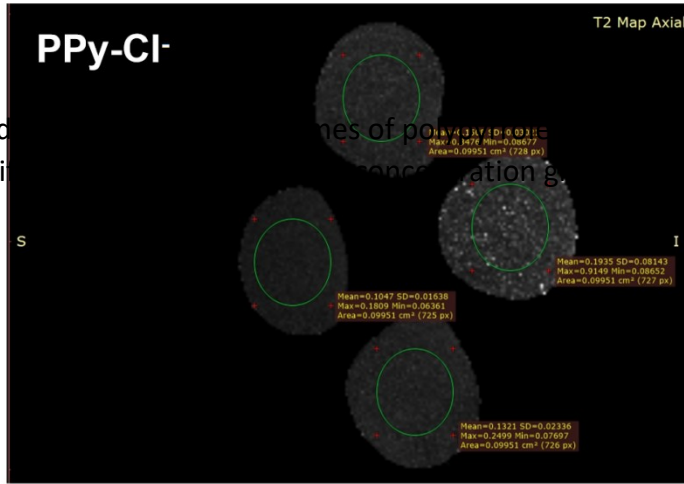
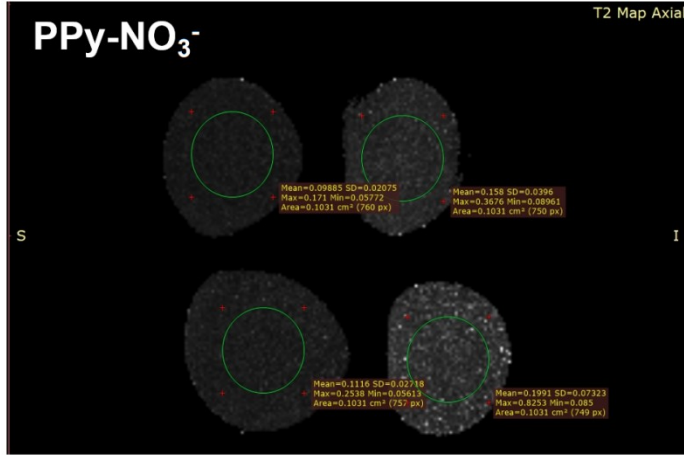
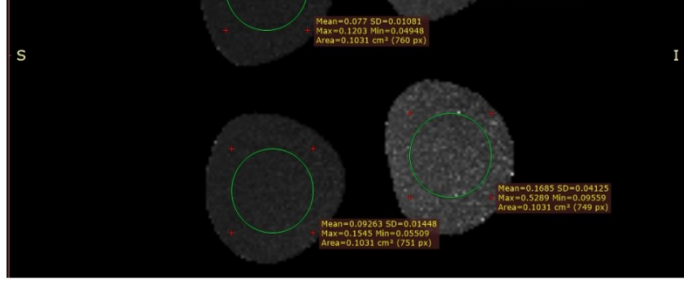


Fig. s4 T₂-weighted imaging of PPy nanoparticles prepared with different concentrations of PPy (0.5, 1.0, 1.5, and 2.0).

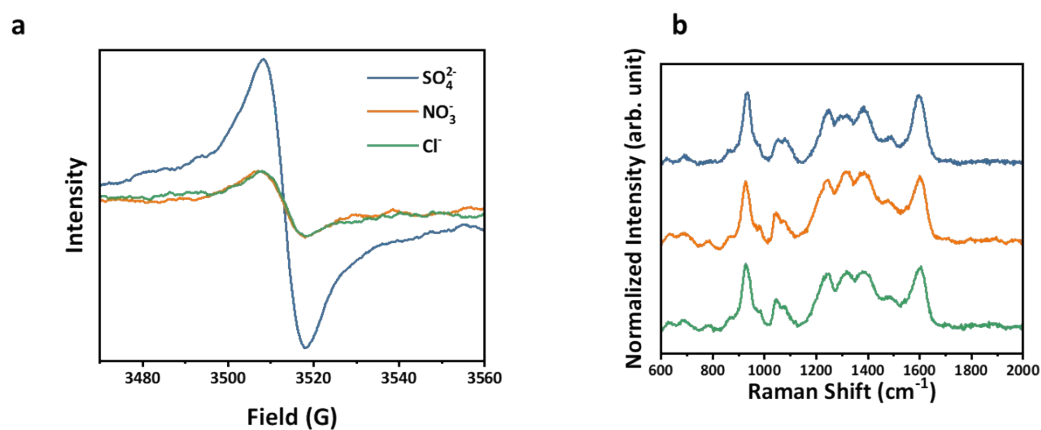


Fig. s5 (a) ESR spectra and (b) Raman spectra of the PPy nanoparticles prepared with different complex ions.

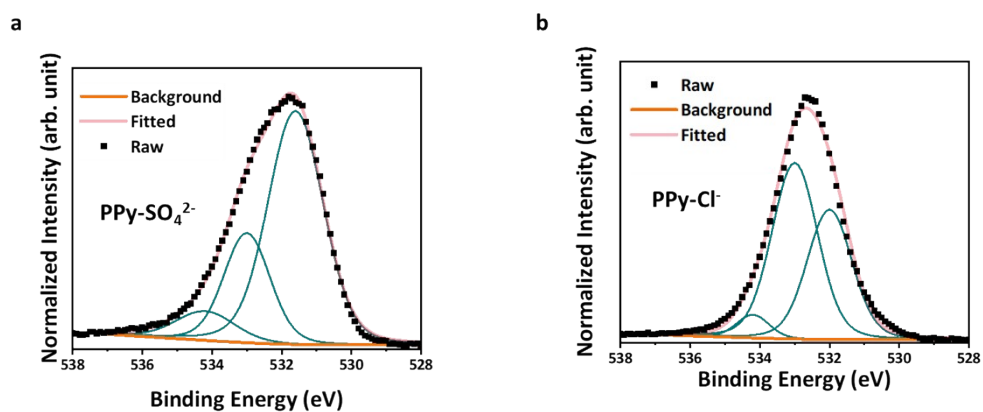


Fig. s6 Peak fitting analysis of the O 1s region for the PPy nanoparticles with different complex ions.

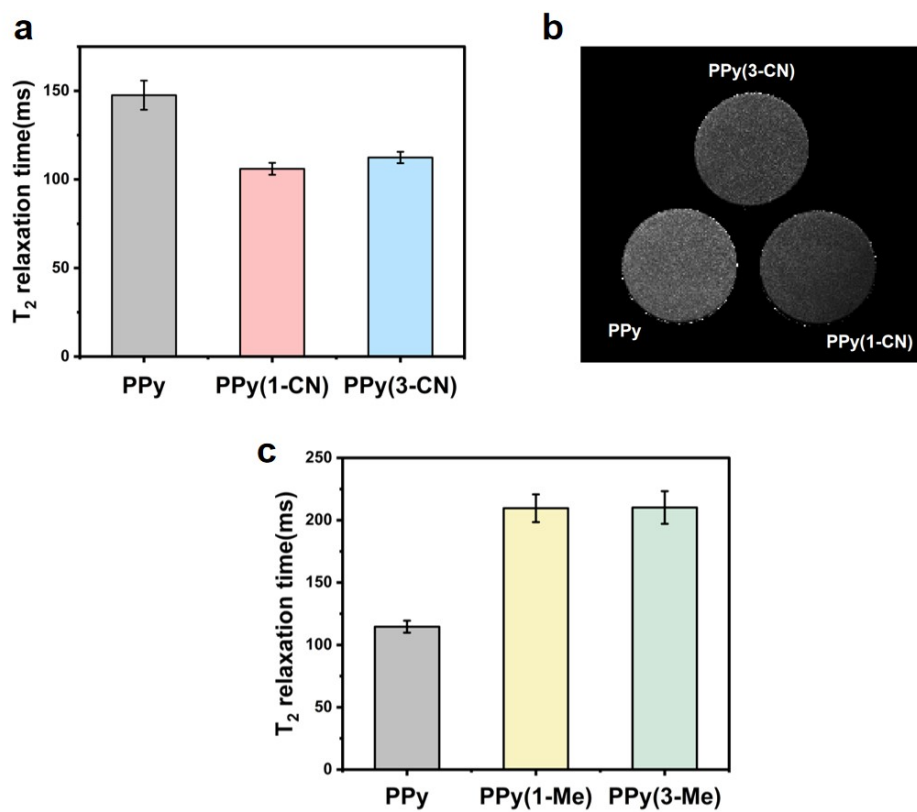


Fig. s7 (a) T₂ relaxation times and (b) T₂-weighted imaging data of the cyano-substituted polypyrrole derivative nanoparticles. (c) T₂ relaxation time of the methyl-substituted polypyrrole derivative nanoparticles.

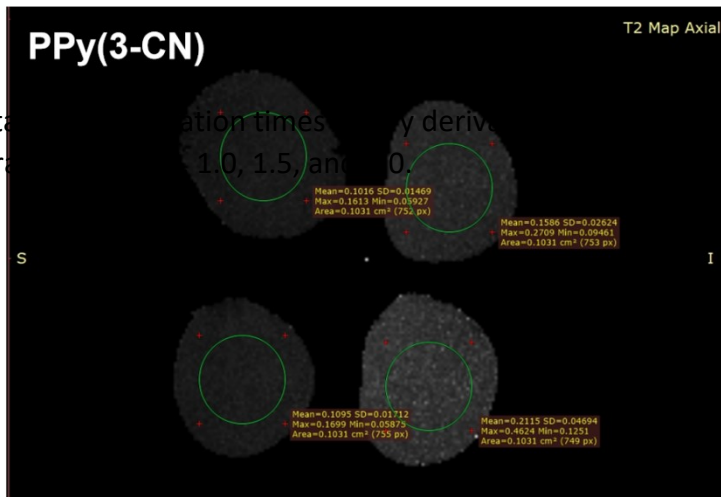
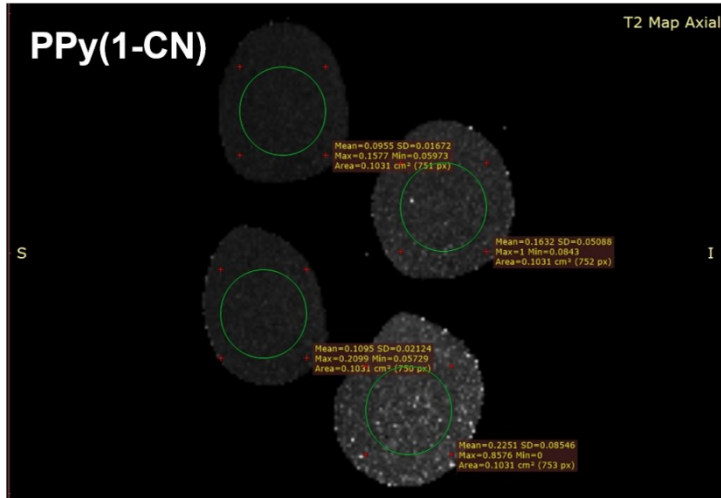
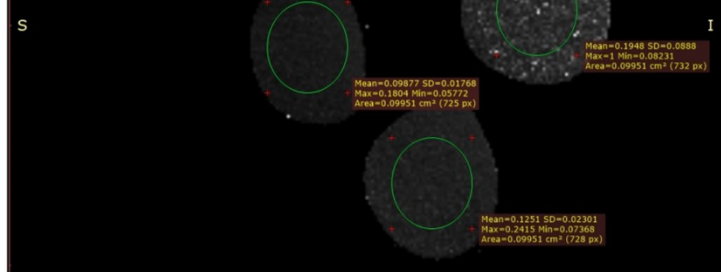
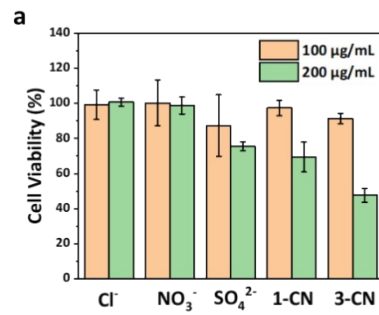


Fig. s8 T₂-weighted imaging data for PPy(1-CN) at concentration groups of 1.0, 1.5, and 2.0. The images were processed using ImageJ to derive the statistical data.



b

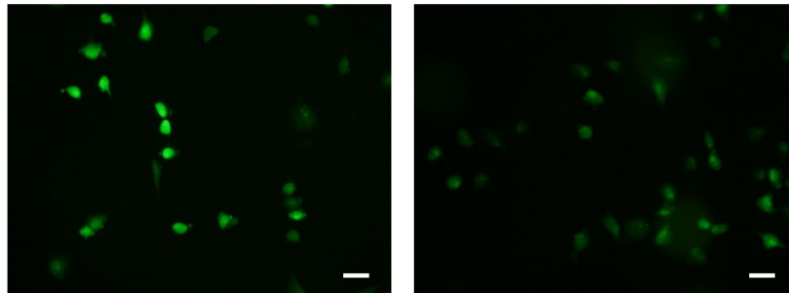


Fig. s9 (a) Cell viabilities of the L929 cells incubated with the different types of PPy nanoparticles. (b) Fluorescence microscope images of L929 cells treated with PPy(1-CN) nanoparticles at high (left) and low (right) concentrations after staining with DCFH-DA probe (Scale bar = 50 µm).