

Abstract Submitted
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Studies of magnetically induced circular polarization phosphorescence in Pt-rich pi-conjugated polymers at high fields¹ C. ZHANG, D. SUN, R. MCLAUGHLIN, University of Utah, E. D. SEMENOV, S. MCGILL, National High Magnetic Field Laboratory, E. EHRENFREUND, Z. V. VARDENY, University of Utah — We have measured magnetic-field induced circular polarization (FICPO) phosphorescence in various Pt-rich pi-conjugated polymers, in which the spin-orbit coupling can be tuned by changing the intrachain Pt atom concentration through incorporation of different organic ligand spacers. FICPO response, which includes the difference between right ($\sigma+$) and left ($\sigma-$) circularly polarized phosphorescence emission bands, increases linearly at low field $B < 5$ T, but starts to saturate at $B \sim 17$ T. We determined the effective g-factor from the Zeeman splitted $\sigma+$ and $\sigma-$ emission bands, and found that its deviation from the free electron value ($g=2$) scales with the strength of spin-orbit coupling in the Pt-polymer chains. Surprisingly, we also found that at intermediate B $\sigma+$ emission intensity at the higher photon energy is stronger than that of the $\sigma-$ emission, indicating B -dependent radiative decay rates in the triplet spin sublevels.

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