

TIME-RESOLVED EMISSION SPECTRA OF THE COORDINATION POLYMERS CONTAINING TRIVALENT LANTHANIDES

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Emission and excitation spectra of the coordination polymers containing trivalent lanthanides such as Sm^{3+} , Eu^{3+} , or Tb^{3+} as the coordination center with cyclohexanedicarboxylate (CHDC, $\text{C}_8\text{H}_{10}\text{O}_4$) ligands were recorded at ambient temperature. Time-resolved emission spectra yield the emission rising and decay curves that reveal the energy transfer mechanisms in these luminescent crystals. The temporal data were successfully analyzed by kinetics models, and the corresponding energy transfer rates were determined. Based upon our results, the energy transfer mechanisms and efficiency can be outlined. In addition, we recently observed a few blue-shift signals in the emission spectra of these coordination polymers. Interestingly, different trivalent lanthanides exhibit profoundly different blue-shift signals. The blue-shift signals possibly arise from some energy transfer processes between the trivalent lanthanide coordination center and the CHDC ligands. The assignments and formation mechanisms of these blue-shift signals are under study. Details of our recent progress will be presented.