Bimetallic Zn and Cd Intramolecular S-S Coupled Ferrocenyl Dithiophosphonate Heterocycles As Potential Light Harvesters In Dye-Sensitized Solar Cells

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Four new bimetallic ferrocenyl S-S coupled dithiophosphonates have been synthesized and characterized by elemental analyses, IR, ^{1}H, ^{31}P and ^{13}C NMR spectroscopy, and X-ray crystallography. The electrochemistry and optical properties of these complexes were also studied. The coordination geometries around the Zn and Cd ions are distorted tetrahedral which could be attributed to the bulky metal derivitised bipyridinyl and phenanthroline groups. These complexes were also assessed as co-sensitizers in dye-sensitized solar cells (DSSCs) and gave good photon-to-current conversion efficiencies.