Hydrothermal Syntheses and Crystal Structures of Two New Polyoxometalate-based Charge Transfer Salts

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Two new charge transfer salts based on Keggin polyoxoanions, $[Hen]_2[H_2en][PMo_{11}^{VI}Mo^{V}O_{40}] \cdot 3.5\,H_2O$ (**1**) and $[Hpy]_4[GeMo_{12}^{VI}O_{40}] \cdot 2H_2O$ (**2**) (en = ethylenediamine, py = pyridine), have been synthesized and characterized by single crystal X-ray diffraction, elemental analyses, IR spectra, UV/vis spectra, cyclic voltammograms and X-ray photoelectron spectra. The IR spectra and solid reflectance electronic spectra of the title compounds indicate that interactions exist between the polyanions and the organic substrates, which are probably caused by charge transfer.

Key words: Polyoxometalates, Charge Transfer Salts, Hydrothermal Synthesis, Crystal Structure