A New Lindqvist Polyanion-based Three-dimensional Network with a NaCl Topology

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A new compound \([\text{Co(bipy)}_3][\text{Mo}_6\text{O}_{19}]\cdot\text{H}_2\text{O} (1)\) (bipy = 2,2\textsuperscript{'}-bipyridine) has been synthesized under hydrothermal conditions and characterized by IR spectroscopy, TG analysis and single-crystal X-ray diffraction. The crystal structure consists of a \([\text{Co(bipy)}_3]^{2+}\) cation, an \([\text{Mo}_6\text{O}_{19}]^{2-}\) anion, and a water molecule. In 1 each \([\text{Co(bipy)}_3]^{2+}\) cation is surrounded by six \([\text{Mo}_6\text{O}_{19}]^{2-}\) anions and \textit{vice versa} in a cubic face-centered close packing array, forming a 3D architecture with NaCl topology. Cations and anions are connected \textit{via} weak hydrogen bonds in which also the water molecule participates. The luminescent and electrochemical properties of the title compound have also been studied.

\textit{Key words:} Polyoxometalates, NaCl Topology, Lindqvist-type Structure, Electrochemical and Luminescent Properties