Electronic Supplementary Information

For

Three-Component 1D and 2D Metal Phosphonates: Structural Variability, Topological Analysis and Catalytic Hydrocarboxylation of Alkanes

By

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1. TGA traces for all compounds

**Figure S-1.** TGA trace for $[\text{Cu}_2(\text{phen})_2(\text{EDPA})_2(\text{H}_2\text{O})_4]_\infty$ (1).

**Figure S-2.** TGA trace for $[\text{Co(phen)(EDPA)(H}_2\text{O)}_2]_\infty$ (1a).

**Figure S-3.** TGA trace for $[[\text{Cu(phen)(MDPA)}\cdot\text{H}_2\text{O}]]_\infty$ (2).
Figure S-4. TGA trace for \([\text{Mn(bpy)(EDPA)(H}_2\text{O)}]_\infty\) (3).

Figure S-5. TGA trace for \([\text{Zn(bpy)(EDPA)}]_\infty\) (4).

Figure S-6. TGA trace for \([\text{Ni(phen)(H}_2\text{O)}_4](\text{EDPA})\) (5).
2. Calculated and measured powder XRD patterns for all compounds.

**Figure S-X.** Calculated (blue, lower) and measured (red, upper) powder XRD powder patterns for $[\text{Cu}_2(\text{phen})_2(\text{EDPA})_2(H_2O)_4]_{\infty}$ (1).

**Figure S-X.** Calculated (blue, lower) and measured (red, upper) powder XRD powder patterns for $[\text{Co}(\text{phen})(\text{EDPA})(H_2O)_2]_{\infty}$ (1a).

**Figure S-X.** Calculated (red, upper) and measured (blue, lower) powder XRD powder patterns for $\{[\text{Cu}(\text{phen})(\text{MDPA})\cdot H_2O]\}_{\infty}$ (2).
Figure S-X. Calculated (red, upper) and measured (blue, lower) powder XRD powder patterns for [Mn(bpy)(EDPA)(H₂O)₂]∞ (3).

Figure S-X. Calculated (red, lower) and measured (black, upper) powder XRD powder patterns for [Zn(bpy)(EDPA)]∞ (4).

Figure S-X. Calculated (red, upper) and measured (blue, lower) powder XRD powder patterns for [Ni(phen)(H₂O)₂][EDPA] (5).