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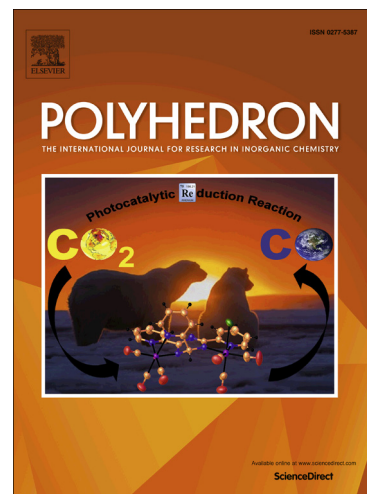
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# Solid-state Conversion of a Three-dimensional Sodium(I) Coordination Polymer with Micro Trigon Morphology to Two-dimensional Silver(I) Coordination Polymer Nanostructures

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## Abstract

The solid-state conversion of a Na<sup>I</sup> coordination polymer with a micro trigon morphology, synthesized by a sonochemical procedure, to Ag<sup>I</sup> coordination polymer nanostructures has been observed upon mechanochemical reaction of the compound [Na<sub>2</sub>(OBA)(H<sub>2</sub>O)]<sub>n</sub> (**1**), [H<sub>2</sub>OBA = 4,4'-oxybis(benzoic acid)] with AgNO<sub>3</sub>. During this conversion, one coordinated H<sub>2</sub>O molecule was removed and two types of Na atoms were replaced with one type of Ag atom in [Ag<sub>2</sub>(OBA)]<sub>n</sub> (**2**). In addition, the OBA<sup>2-</sup> ligand, with μ<sub>8</sub> coordination mode in **1**, showed a μ<sub>6</sub> coordination mode in **2**. The angle of the two aromatic rings of the OBA<sup>2-</sup> ligand is changed from 57.03° in **1** to 59.46° in **2**. IR spectroscopy, X-ray powder diffraction (XRD) and thermogravimetric and differential thermal analyses (TG-DTA) indicated that this conversion is irreversible.

**Keywords:** Coordination polymer, Sonochemical, Mechanochemical, Solid-state, Conversion, Nanostructure.

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