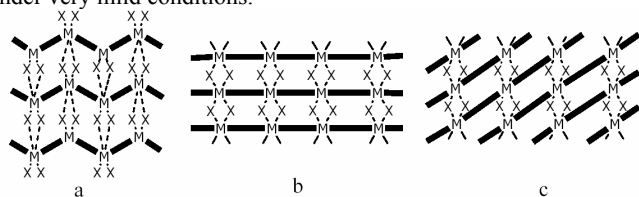


Single-crystal to single-crystal reactions

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Single-crystal to single-crystal (SCSC) reaction represents the most fascinating field of solid-state chemistry [1-2], which in nature demands to make or break strong chemical bonds. Such transformation involves cooperative atomic movement between reactant and product (both are single crystals) in solids. In this contribution we wish to present two thermal-induced reversible SCSC reactions, in which unprecedented changes in network topology occur under very mild conditions.



1) Topotactic phase transformation between 1D tetrahedral chain polymers $[\text{Zn}(\mu\text{-Cl})_2(4,4'\text{-bpy})]_n^1$ (**1a** and **1b**, structure a) and 2D network $[\text{Zn}(\mu\text{-Cl})_2(\mu\text{-bpy})]_n^2$ (**2**, b) [3]; 2) between two 2D networks b and c on the polymer $[\text{Pb}(\mu\text{-Cl})_2(\mu\text{-bpy})]_n^2$ (**3**).

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