MS26-P6 **Optical Properties and Doping Effects of Divalent Tin Phosphite Grown from Deep-Eutectic Solvent.** Hui-Lin Huang, and Sue-Lein Wang, *Department of Chemistry, National Tsing Hua Univerity, Hsinchu, Taiwan 30013*
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This is the first study on the ionothermal synthesis, intrinsic photoluminescence, and dopant effects for tin(II) phosphite, a stereochemically active $5s^2$ lone-pair-electron -containing compound. The reaction condition for preparing the fundamental tin(II) phosphite compound has been achieved. Single-phased products of $SnHPO_3$ (**1**) and $Sn_{1-x}Mn_xHPO_3$ (**2**) have been achieved in high yield in a new deep-eutectic solvent. The crystalline powder of **1** is non-enantiomorphic, with an intense second-harmonic generation (SHG) comparable to that of potassium di-hydrogen phosphate (KDP). Under UV excitation, it unexpectedly emits white photoluminescence, an important intrinsic property never discovered in tin(II) oxysalts. Electron paramagnetic resonance (EPR) hyperfine splitting characteristic of manganese (II) has been detected on **2** and a three-pulse electron-spin-echo envelope modulation (ESEEM) technique implemented to locate its corresponding location in the inorganic host. On the basis of temperature-photoluminescence and lifetime measurements, the incorporated Mn^{2+} uncommonly acts as a sensitizer in enhancing white emission until extremely low temperatures, in which it would resume its normal role as an activator to give out characteristic orange light. This work shows ESEEM technique can function as a powerful tool to better understand the environment of activator/sensitizer in all kinds of luminescent materials. The temperature-dependent luminescence of **2** might also serve as a potential sensor in extreme low temperatures.

[1] Huang, H. L. & Wang, S. L. (2012). *Inorg.Chem.* **51**, 1986-1988.

Keywords: deep-eutectic solvent; optical property; tin phosphite

MS26-P7 **Controlled Synthesis and Mechanical Property of a Highly Flexible Porous Zinc Phosphite** Hsin Yau Lin, Sue-Lein Wang, *Department of Chemistry,National Tsing Hua University, Taiwan*
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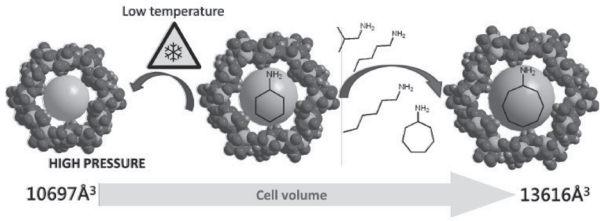
A new zinc phosphite framework, NTHU-11, with record high porosity in the system of inorganic metal phosphate frameworks, built up with tetrahedra of ZnO_4, HPO_3 and HPO_4 with occluded organic templates occupying 60.3% of the lattice volume was observed to show exceptional flexibility and compressibility. At ambient pressure, the nanoporous structure endured volumetric alteration up to 13% and aperture contractibility by 14% without change in symmetry or affecting the integrity of inorganic framework. Under a high pressure of 2.37 GPa, it even accommodated a larger reduction in cell volume up to 27% without phase transition. In this study, stable synthesis of a desired nanoporous phase with the possibility of tuning porosity has been successfully achieved. The reaction system of NTHU-11 provides a new paradigm in which three supramolecular template topologies in different shape or dimension have been identified and manipulated through experiments for the first time.



[1] Luo, X., Luo, D., Zeng, H., Gong, M., Chen, Y., and Lin, Z. (2011). *Inorg. Chem.* 50, 8697-8699.

Keywords: flexibility; high pressure; compressibility