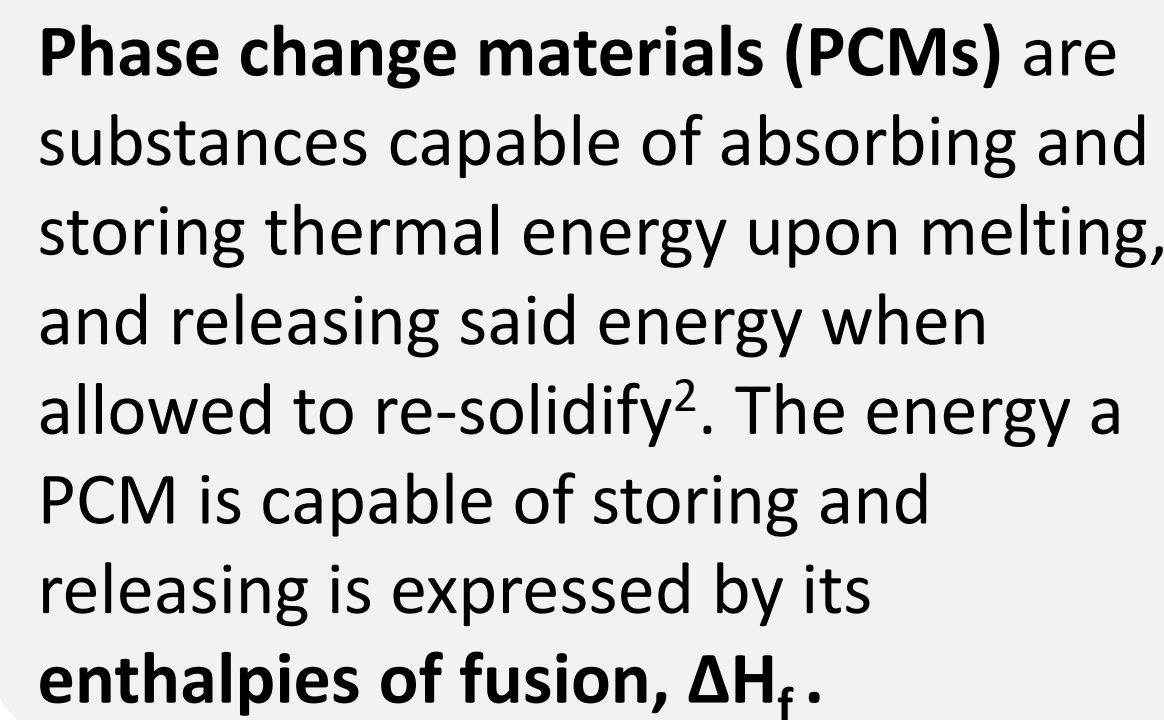
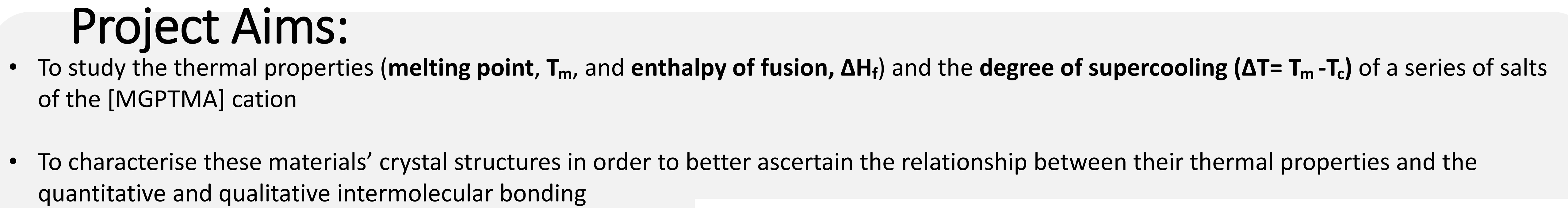
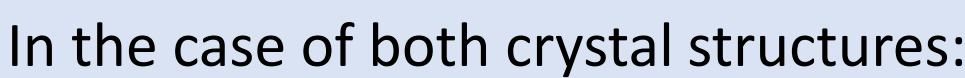


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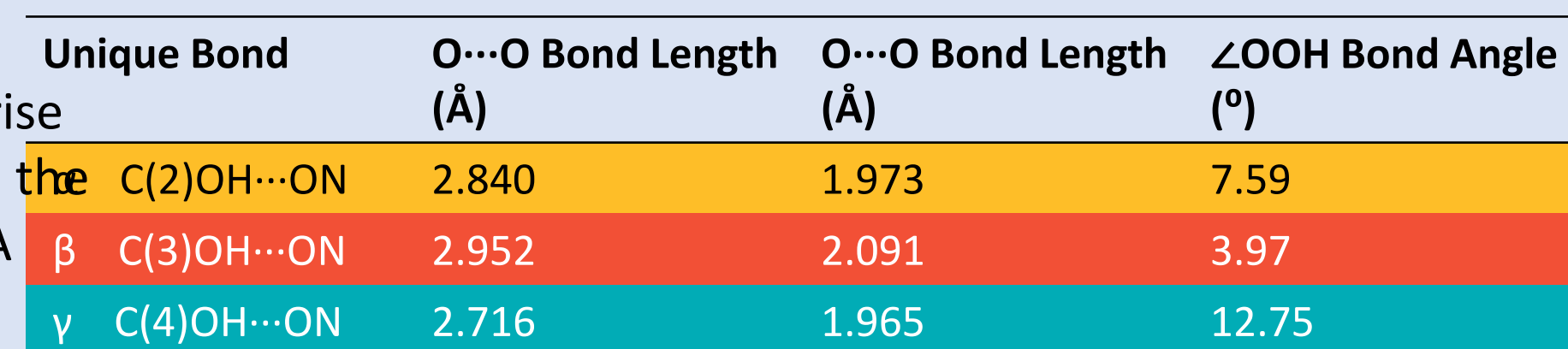
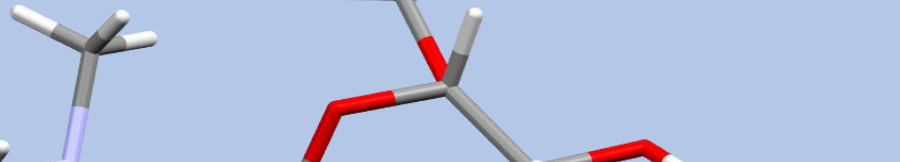
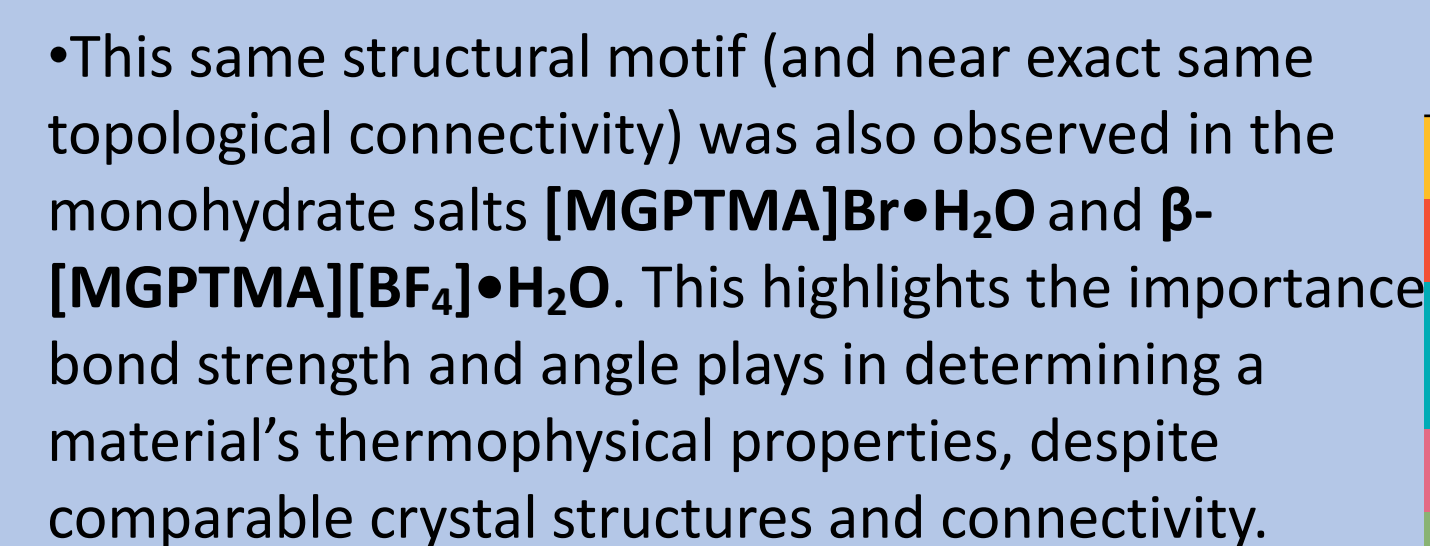
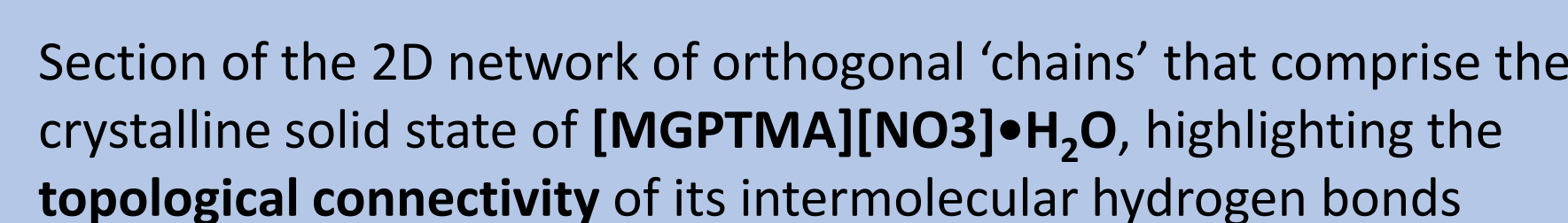
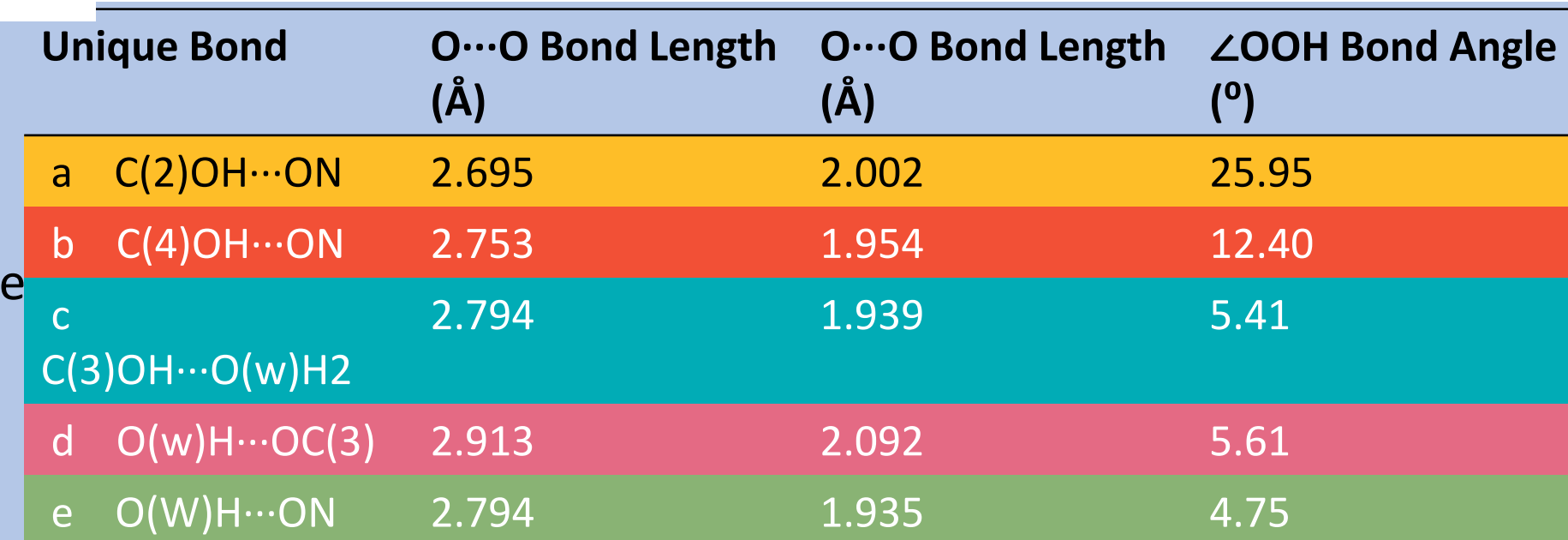
The effective utilisation of solar thermal energy in commercial and residential settings is an important step in the decarbonization of energy supply chains¹.



- The salt $[\text{MGPTMA}][\text{NO}_3]$ was found to have an **appreciably high ΔH_f** , with a T_m within the desired range of
 - Additionally, a **stable monohydrate, $[\text{MGPTMA}][\text{NO}_3] \cdot \text{H}_2\text{O}$** was found to have **properties even more desirable** for use as a PCM than its anhydrous counterpart



Section of a single linear ‘chain’ that comprises the crystalline solid state of [MGPTMA][NO₃], highlighting the **topological connectivity** of its intermolecular hydrogen bonds



- The best thermal properties were found in both anhydrous **[MGPTMA][NO₃]** and its monohydrate, **[MGPTMA][NO₃]•H₂O**.

•[MGPTMA][NO₃]•H₂O may perhaps be the first known example of an '**organic salt hydrate**' PCM. Organic salt hydrates have possible advantages over the widely-utilised Inorganic Salt Hydrates.

• **Strong intermolecular hydrogen bonds** correlate to a **high enthalpy of fusion**, but a **minimised supercooling** correlates to the **ease with which these bonds are re-formed** upon crystallisation. These should be the guiding principals for future PCM design.

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