Assignment 4, due Monday May 21st.

1. Explain the principle of building the different Ruddlesden-Popper alkylammonium lead halides: \([\text{RNH}_3/\text{R}´\text{NH}_3]_n[\text{PbI}_4]_m\) with appropriate illustrations. How are these materials intrinsic multiple quantum well architectures. What is the dimensionality of the quantum confinement?

2. How would the quantum confinement in systems like the above be recognized?

3. Suggest a few uses of carbon nanotubes.

4. What are positive and negative disclinations with respect to graphene sheets, and how are these used in the construction of closed carbon structures.

5. Provide examples of layered inorganic structures that like to wrap up into tubes.