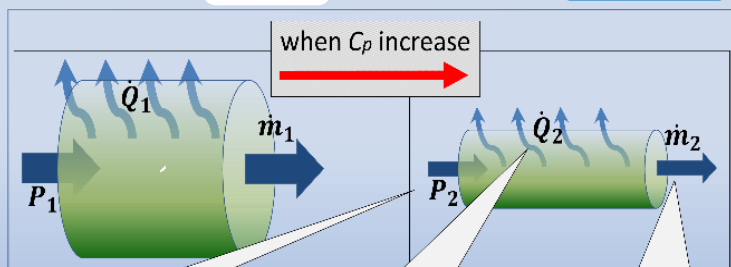
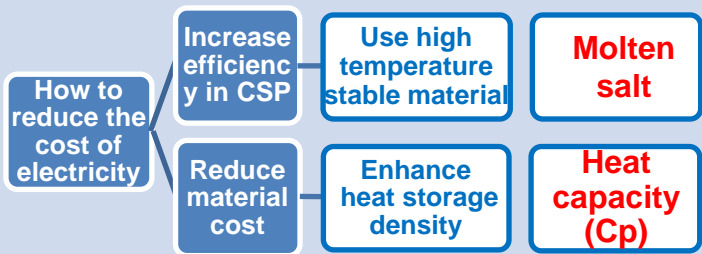


In-situ synthesis of solar thermal energy storage

by CMU SOLAR ENERGY TEAM

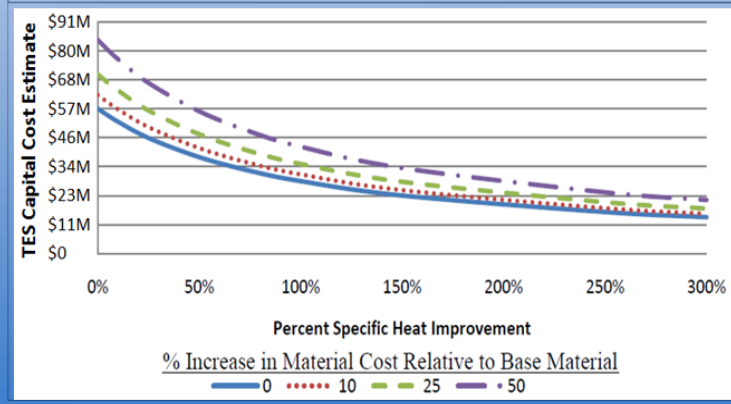
Why should we enhance C_p of molten salt?



Pumping power decreases ($P_1 > P_2$) → Reduce operation cost

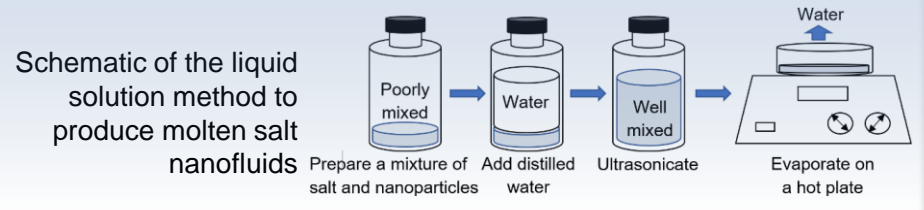
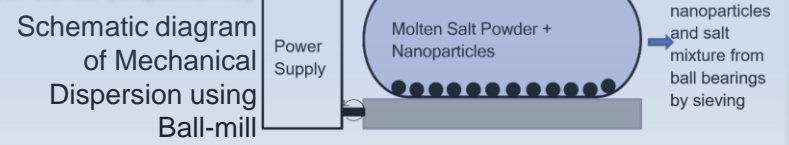
Structure size decreases ($\dot{Q}_1 > \dot{Q}_2$) → Reduce energy loss

Mass flow rate decreases ($\dot{m}_1 > \dot{m}_2$) → Reduce material cost

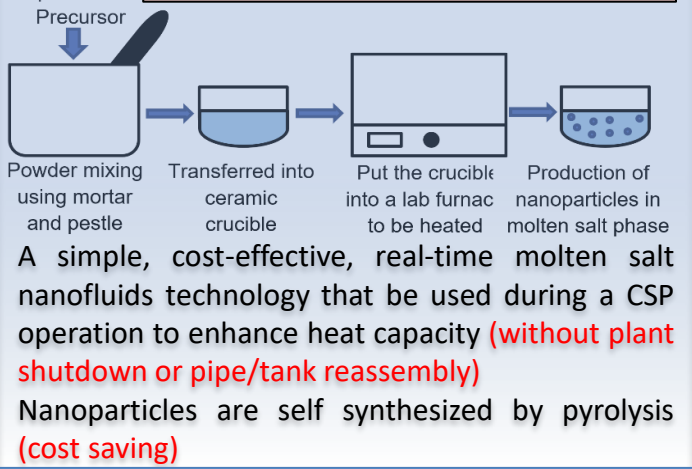


Embedding nanoparticles for enhancing C_p

One of the most widely studied technology for enhancing C_p of molten salt is to disperse nanoparticles at small concentrations. However, the reported synthesis protocol is **too complicated to scale up** for practical applications. Moreover, they use commercial nanoparticles (**expensive**)



In-situ synthesis of nanoparticle



Final Goal: simple, real-time solution

