Molecular dynamics simulation of nucleation and growth of crystals from solution

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Nucleation and growth of crystals from solution is a phenomenon of great practical relevance. Yet its study is rather challenging both experimentally and theoretically. Computer simulations could be of great help however they are rather difficult. To this effect we have developed a number of methods that can help overcoming many of the difficulties. We shall present results on the growth of urea from aqueous solutions in the presence and the absence of additives. We show how additives in particular biuret can control the shape of the growing crystal. We also show how the nucleation from saturated water solution of the humble NaCl hides some remarkable surprises.