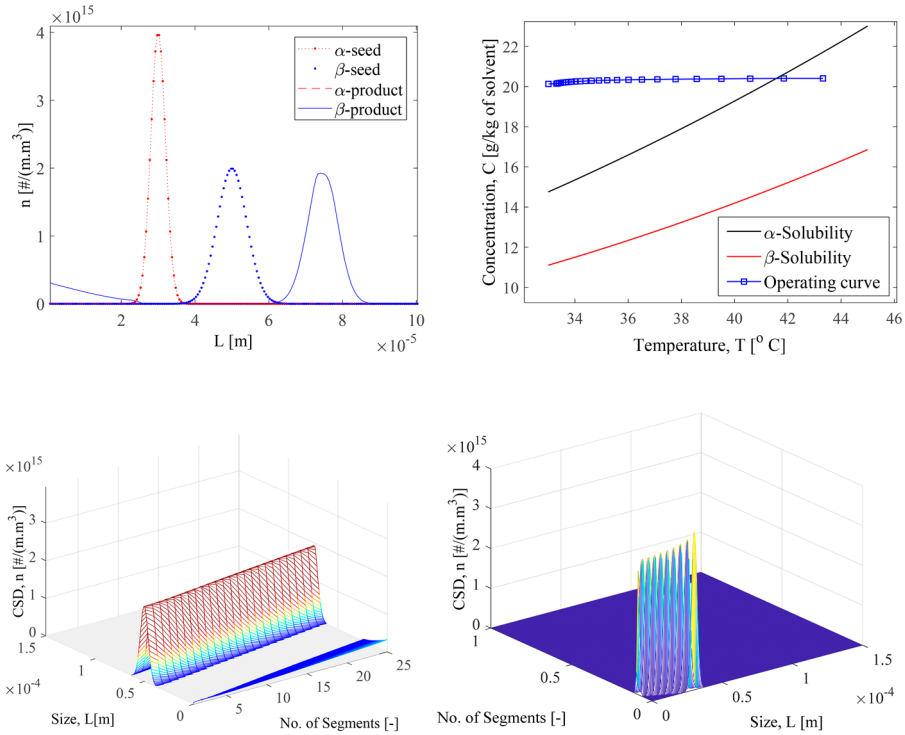

Figure 2.14 Simulation results for the polymorph transformation. (Top left) Seed and product CSD from the PFC, α-form completely dissolved at the outlet. (Top right) Operating curve in the phase diagram where starting point lies in between two solubility curves. (Bottom left) Evolution of the β-form along the PFC. (Bottom right) Dissolution of the metastable α-form in the first segment.

phase diagram is shown. As can be seen, the inlet point lies in between the solubility curves, *i.e.*, supersaturated with respect to the stable form while undersaturated with respect to the metastable form, resulting in dissolution of the metastable crystal form.

2.6.2 Modeling Preferential Crystallization of Enantiomers

Chiral molecules or enantiomers are molecules which are non-superimposable mirror images of each other. Chirality is very common in organic molecules, *e.g.*, amino acids. These molecules have identical physical properties, however, their biological activities can be different. For instance, *S* (−)-fluoxetine shows remarkable therapeutic effects in preventing migraines, while the racemic (equimolar mixture of both enantiomers) drug has no effect.[35] Thus, the pharmaceutical regulatory authority demands that the drugs are manufactured in enantiopure form. The enantiomers are typically found in an equimolar mixture known as a racemic mixture. Due to the identical physical properties, separation