# Size effects for amorphous crystallization kinetics: Constraints imposed by nucleation and growth specificities

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The main purpose of the presentation is to highlight the intrinsic link between the nucleation rate and growth rate with a temperature dependent characteristic transformation time $\tau(T)$, and a characteristic size $\xi(T)$. The consequences on the influence of the sample size on kinetics of crystallization is considered. The expression of the kinetic crystallization rate, $X(t)$, of a nucleation and growth transformation is fundamentally dependent on the position of the sample size ($L$) with respect to $\xi$. It changes from an Avrami like behavior for $L >> \xi$ to a size dependent exponential regime for $L << \xi$. The significance of size effect and confinement for amorphous stabilization in the pharmaceutical sciences is discussed.

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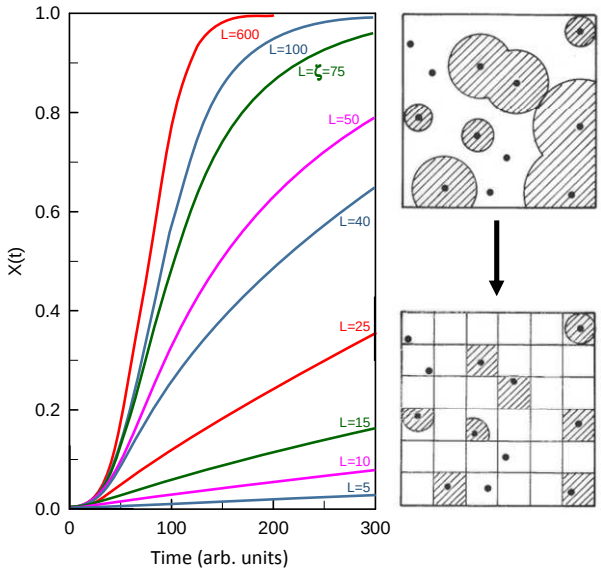


2-Dimensional simulation of the time evolution of the transformed fraction *X(t)* for different grain sizes (from above to below $\xi$ ).