In this talk, we discuss a compactness result on the space of compact Lagrangian self-shrinkers in $\mathbb{R}^4$. When the area is bounded above uniformly, we prove that the entropy for the Lagrangian self-shrinking tori can only take finitely many values; this is done by deriving a Łojasiewicz-Simon type gradient inequality for the branched conformal self-shrinking tori. Using the finiteness of entropy values, we construct a piecewise Lagrangian mean curvature flow for Lagrangian immersed tori in $\mathbb{R}^4$, along which the Lagrangian condition is preserved, area is decreasing, and the type I singularities that are compact with a fixed area upper bound can be perturbed away in finite steps. This is a Lagrangian version of the construction for embedded surfaces in $\mathbb{R}^3$ by Colding and Minicozzi.

This is a joint work with Jingyi Chen.