Behavior of polygonal curves by area-preserving crystalline curvature flow

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An area-preserving crystalline curvature flow is regarded as a simple model of the deformation process of a negative crystal. In this talk, behavior of polygonal curves by area-preserving crystalline curvature flow is discussed. We show "convexity phenomena", that is, the solution polygon from a non-convex initial polygon becomes convex in a finite time. Due to show this assertion, we classify edge-disappearing patterns completely and prove that all zero-curvature edges disappear in a finite time, and we also show that evolution process of the flow can be continued beyond such edge-disappearing singularities. This is a joint-work with Shigetoshi Yazaki(Meiji University, Japan).