

**Bellettini, Giovanni; Caselles, Vicent; Chambolle, Antonin; Novaga, Matteo**  
**Crystalline mean curvature flow of convex sets.** (English) [Zbl 1148.53049](#)  
*Arch. Ration. Mech. Anal.* 179, No. 1, 109-152 (2006).

Summary: We prove a local existence and uniqueness result of crystalline mean curvature flow starting from a compact convex admissible set in  $\mathbb{R}^n$ . This theorem can handle the facet breaking/bending phenomena, and can be generalized to any anisotropic mean curvature flow. The method provides also a generalized geometric evolution starting from any compact convex set, existing up to the extinction time, satisfying a comparison principle, and defining a continuous semigroup in time. We prove that, when the initial set is convex, our evolution coincides with the flat  $\phi$ -curvature flow in the sense of Almgren-Taylor-Wang. As a by-product, it turns out that the flat  $\phi$ -curvature flow starting from a compact convex set is unique.

**MSC:**

- 53C44** Geometric evolution equations (mean curvature flow, Ricci flow, etc.) (MSC2010)  
**58E12** Variational problems concerning minimal surfaces (problems in two independent variables)

Cited in **1** Review  
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