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Lawrenceville, NJ 08648, and **Ileana Streinu**, Smith College. *Auxetics and convexity*.

Periodic bar-and-joint frameworks with auxetic deformations model (meta-)materials with auxetic behavior, which entails lateral widening upon stretching. We find rather stringent structural constraints, expressed as convexity conditions (ellipsoids and convex polytopes), which must be satisfied by all periodic frameworks with auxetic capabilities. For frameworks with two vertex orbits under periodicity, a complete classification becomes possible. (Received January 11, 2017)