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## Periodic Striped Minimizers in a 2D Model for Martensitic Phase Transitions

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We shall consider an effective 2D scalar model for the formation of mesoscopic domain patterns in martensitic shape-memory alloys at the interface between a region occupied by the parent (austenite) phase and a region occupied by the product (martensite) phase, which can occur in two variants (twins). The model, first proposed by Kohn and Mueller (KM), depends on two material parameters, measuring the strength of the interaction between austenite and martensite, and the surface tension in the martensite. Depending on their relative values, the minimizers of the KM model are expected to display different qualitative features : either striped periodic order or self-similar branching. In this talk I will describe the proof that, in a suitable range of parameters, the minimizers, in fact, display periodic striped order. The proof is based on a combination of reflection positivity and Poincaré-type inequalities.