

1075-74-119

Yury Grabovsky* (yury@temple.edu), **Vladislav A Kucher** (kucher-va@yandex.ru) and **Lev Truskinovsky** (trusk@lms.polytechnique.fr). *On instabilities of smooth phase boundaries in non-linearly elastic solids.*

Different notions of elastic stability can be applied to phase boundaries. One of them, positivity of the generalized second variation, first computed explicitly by Grinfeld, will be discussed in detail. We extend Grinfeld's work to general energy densities, as well as simplify the final formula. We then apply the method in the example with bi-quadratic elastic energy and prove an instability result that cannot be obtained by any other method. (Received August 25, 2011)