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ON THE ASYMPTOTICS OF THE SMALLEST EIGENVALUE OF LAMÉ AND RELATED OPERATORS IN THIN DOMAIN

We study the asymptotes of the smallest eigenvalue of the Lamé operator in linear elasticity in thin domains in terms of the domain thickness. This problem is equivalent to finding optimal constants in Korn's inequalities. To that end, we introduce a new auxiliary problem and study it. The related operator for the new problem is an interpolation between the Lamé operator and the one arising from Korn's second inequality. I will present new classical result in this direction, and discuss the nonlinear problem. This is recent progress in the direction of determining the geometric rigidity of thin domains.