

Article Abstract

Title:	Adaptation of generalized Hill inequalities to anisotropic elastic symmetries
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Abstract:	Mechanical and elastic behaviors of anisotropic materials are investigated in an innovative way. This is based on generalized Hill inequalities. From different type of anisotropic elastic symmetries, numerical examples are given. Constructing bounds on effective eigenvalues provides a deeper understanding about mechanical behavior of anisotropic materials. Generalized Hill inequalities are adapted to all anisotropic elastic symmetries. The materials selected from the same symmetry type which have larger interval between the bounds, are more anisotropic whereas smaller interval between the bounds, are closer to isotropy. Besides it is proved that there are relations between bulk and shear modulus and eigenvalues of cubic and isotropic symmetry and by these relations, two linear invariants are found out.
Keywords:	Generalized Hill Inequalities, Elastic Constants, Anisotropic Elastic Symmetries, Anisotropy, Bounds.