Title: A Heterogeneous Multiscale Model for Linear Elasticity

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Abstract: When material parameters vary greatly over small spatial scales, computational simulation of solid mechanics may become prohibitively expensive. We develop a multiscale approach to solve linear elasticity equations with heterogeneous material coefficients at a significantly smaller computational costs. Our approach is based upon the Heterogeneous Multiscale Framework based on the finite volume method. We apply the Method of Manufactured Solutions to analyze convergence results for two-dimensional simulations.