

Stability and Precondition of a Force-Based Quasicontinuum Method

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I shall discuss two issues of a force-based quasicontinuum method (FQC), which is one of the two main multiscale coupling strategies in solids. First, I propose a general stability concept for FQC, which seems particularly suitable for high dimension problems. Two FQC methods are proven to be stable and numerical examples are also reported. Second, I discuss the precondition for the linear systems arising from FQC, which stems from its stability. Several numerical examples are reported to show the efficiency of the proposed preconditioner. This is a joint work with Long Cui and Jianfeng Lu.