

## Quadrature-rule Type Approximations to the Quasicontinuum Method for Long-range Interatomic Interactions<sup>1</sup>

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### Abstract

A quadrature-rule type approximation of the quasi-continuum method for atomistic mechanics is presented. Simple analysis and computational experiments are presented that illustrate that the new method has, for the same accuracy, lower complexity compared to not only the quasi-continuum method, but also to cluster-type approximations of that method. A discussion about some implementation issues connected to the new method is also provided.

**Keywords:** atomistic models; quasicontinuum method; quadrature-rule type approximation; long-range interactions; Coulomb potential.

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