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A Fractal Model for the Effective Thermal Conductivity of Granular Flow with Non-uniform Particles

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Abstract: The equipartition of energy applied in binary mixture of granular flow is extended to granular flow with non-uniform particles. Based on the fractal characteristic of granular flow with non-uniform particles as well as energy equipartition, a fractal velocity distribution function and a fractal model of effective thermal conductivity are derived. Thermal conduction resulted from motions of particles in the granular flow, as well as the effect of fractal dimension on effective thermal conductivity, is discussed.

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Key words: fractal, effective thermal conductivity, granular flow

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