Directional transport induced by elasticity and volume exclusion

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Abstract

We investigate an exactly solvable model for directional transport in 1D. The structured system, which has strong elastic interactions in its parts, explicitly demonstrates the role of volume exclusion in producing directional transport. We capture the complementary role of the elasticity and volume exclusion as the basic ingredient for showing up of broken microscopic symmetry at the scale of macroscopic motions. We compare the analytic results with the numerical simulation.

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