

عنوان مقاله:

Modeling of rough spherical nano particle Manipulation in pushing purposes based on nano robot AFM

محل انتشار:

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خلاصه مقاله:

In this paper, the dynamic behavior of rough spherical micro/nanoparticles, while being pushed on smooth substrates, is studied by means of an Atomic Force Microscope (AFM). For this purpose, two rough particles theories George and Cooper been studied. Then, the dynamic model of rough particle manipulation on smooth substrates is revised using the contact theory of JKR for rough particle. And finally, the pushing of spherical particles with 50nm radii is simulated. Simulation of manipulation nano gold particle with different roughness on the base surface shows that the existence of roughness causes the increase in amount of critical sliding friction due to ignoring of non-contact parameter in adhesion equation.

کلمات کلیدی:

Nano Manipulation; Atomic Force Microscopy; Roughness; Contact mechanics

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