## عنوان مقاله:

A review of roughness coupling effects on the contact area, interfacial separation, adhesion, and friction between an elastic solid and a hard substrate with randomly rough, self-affine fractal surfaces


## محل انتشار:

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## نویسندگان:

محدثه فشانجردی – Faculty of Condensed Matter Physics, Department of Physics, Alzahra University, Tehran, Iran

امیرعلی مسعودی – Faculty of Condensed Matter Physics, Department of Physics, Alzahra University, Tehran, Iran



## خلاصه مقاله:

When two solids are squeezed together they generally do not make atomic contact everywhere within the nominal contact area.This fact should be considered in many technological applications due to its enormous practical implications. In this paper, we briefly review Persson's contact mechanics and then review an extended version of Persson's contact mechanics. In the extended version, we consider that two solids are rough and calculate the effects of surface roughnesses of two solids on the area of real contact, adhesion, friction, and interfacial separation.We show these values strongly depend on the roughness of two solids and the cross-correlation between them. Therefore, we present that there is no general mapping between systems of both surfaces being rough and self-similar, and those with only one surface being rough and self-similar.



## کلمات کلیدی:

Self-affine fractal, Auto-spectral density function, Cross-correlation, Adhesive contact, Friction