

Effect of roughness on the adhesive tractions between contacting bodies

Junki Joe, M.D. Thouless, J.R. Barber

PII: S0022-5096(18)30194-7
DOI: [10.1016/j.jmps.2018.06.005](https://doi.org/10.1016/j.jmps.2018.06.005)
Reference: MPS 3362



To appear in: *Journal of the Mechanics and Physics of Solids*

Received date: 6 March 2018
Revised date: 1 June 2018
Accepted date: 5 June 2018

Please cite this article as: Junki Joe, M.D. Thouless, J.R. Barber, Effect of roughness on the adhesive tractions between contacting bodies, *Journal of the Mechanics and Physics of Solids* (2018), doi: [10.1016/j.jmps.2018.06.005](https://doi.org/10.1016/j.jmps.2018.06.005)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Highlights

- The paper presents an efficient procedure for predicting the effect of broad spectrum surface roughness on the effective adhesive traction law
- Results agree well with the averages of direct numerical simulations for the relatively narrower spectra over which such simulations are computationally practicable.
- Near the unstable range, a greater reduction in adhesive effects is predicted and this behaviour has been confirmed for relatively narrow spectra using numerical simulations.
- At large wavenumbers [short wavelengths], the effect of roughness on adhesion is well-characterized by the height variance m_0 but at lower wavenumbers elastic effects become more important and incremental contributions to m_0 have less effect, except near the unstable range.

Download English Version:

<https://daneshyari.com/en/article/7177398>

Download Persian Version:

<https://daneshyari.com/article/7177398>

[Daneshyari.com](https://daneshyari.com)