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**Effect of Counterface Roughness on Sliding Friction of Alkane Monolayers** KEVIN VAN WORKUM, United States Naval Academy, GINGER CHATEAUNEUF, GUANGTU GAO, DAVID SCHALL, JUDITH HARRISON — Classical molecular dynamics simulations of carbon-based counterfaces sliding against a monolayer of alkane chains are presented. The tribological behavior three carbon-based counterfaces of varying roughness are compared. The distribution of contact forces between individual monolayer chain groups and the counterface shows a strong dependence on the surface roughness of the counterface. Distinctions between contact forces which oppose and those which assist the counterface motion are made and are related to the net friction. A perfectly smooth counterface shows a relatively narrow distribution of contact forces. The width of the distribution of contact forces increases with increasing counterface roughness. The local motion of the alkane chain end-groups is also discussed in terms of the roughness of the sliding counterface.

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