

Abstract Submitted  
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**Influence of Patterned Surfaces on Adhesion** EDWIN CHAN, TINA THOMAS, ALFRED CROSBY, UMASS-Amherst — Nature has illustrated the influence of surface patterns in controlling adhesion. Despite the current experimental and theoretical work to mimic such systems (e.g. Gecko setae), little is known on how individual features as well as neighboring features affect adhesion. We address this question by utilizing a combinatorial approach to simultaneously vary the feature spacing and size of the patterns for soft elastomers such as poly(dimethyl siloxane) and poly(n-butyl acrylate) elastomers. Contact adhesion tests based on Johnson, Kendall and Roberts (JKR) theory are used to characterize the adhesion of these patterned soft elastomers to a glass hemisphere. Scaling laws for various adhesion descriptors are presented to demonstrate the relationship between the material properties and the pattern characteristics.

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