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Tuning Surface and Interface Properties Through Crystal Engineering STEPHEN Z. D. CHENG, RYAN VAN HORN, WENBIN ZHANG, The University of Akron — Surfaces and interfaces are critical for polymer adhesion, wettability, and barrier properties. Therefore, understanding and controlling surface and interface properties has wide ranging impact on a number of emerging fields. To more precisely control these properties, their molecular origin, both chemical and geometrical, need to be elucidated, but the correlation of surface properties to molecular characteristics is inherently difficult due to their 2-D nature. Single crystals can create the well defined surfaces needed to illuminate these relationships. The folds on the crystal surface provide a directional grain. Diblock co-polymers allow the chemical composition of surfaces to be changed and the topology of the surface to be precisely varied by changing the tethering density of the chains. Even the organic/inorganic interface properties can be investigated by attaching crystallizable chains to inorganic particles and utilizing the crystallization to force the 2-D assembly of the particles. In all, single crystals are a versatile way to investigate surface and interface properties.

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