

Predicting surface diffusion from molecular structures

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Many kinds of materials, including thin films, are created by adding atoms or molecules to a surface. As a result, understanding how molecules move along a surface is an important part of making new materials.

In general, diffusion and crystal growth are much faster on the surface of glasses than in the interior. How much faster depends on how big the molecules are, and how many hydrogen bonds the surface molecule has to the bulk, as MRSEC researchers have recently discovered.

This model works for many different molecules, giving a quick and easy way to predict surface motion and guide the synthesis of new materials.

