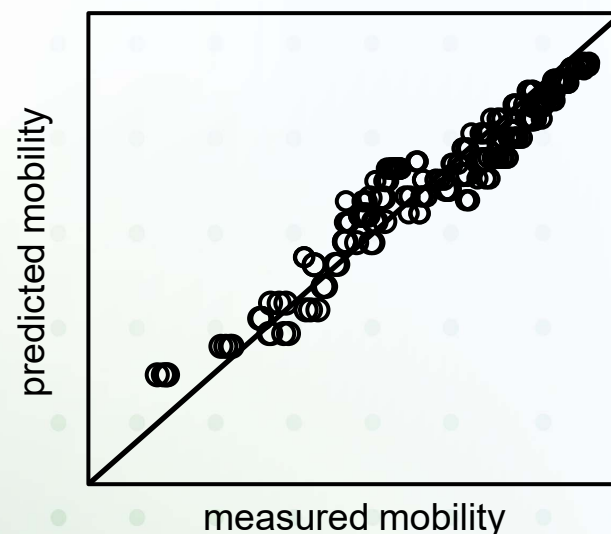
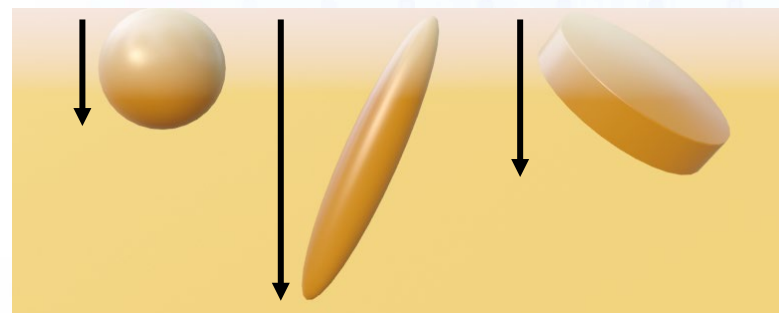


Predicting Surface Diffusion on Molecular Glasses

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Molecules near to the surface of a glass move *much* faster than molecules on the inside – up to a billion times faster. Making glasses often involves adding new molecules from the surface, so high surface mobility is crucial for making materials for cell phone displays, organic solar cells, and drug delivery.

Scientists know that bigger, heavier molecules move more slowly. But molecules also come in different shapes, like spheres, discs, and rods, and the shape matters to surface mobility, even for molecules that are the same size. Researchers from the Wisconsin MRSEC now understand why: Molecules that stick down into the glass farther move more slowly. For examples, rods are slower than spheres. This simple idea, turned into equations, allowed the team to predict all of the known surface mobilities for organic molecules just from the molecular structure. This powerful predictive tool will speed up design of new molecules and development of new glasses.



(9 orders of magnitude range)