

## Determining the reactivity of photodynamic crystals of *o*-azidostilbene

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Photodynamic crystals, crystalline materials that exhibit visible motion in response to photochemical reactions, could provide a new basis for developing nanoscale machines. Currently it is difficult to predict photodynamic behavior based on crystal structure.

Photolysis of azido derivatives results in the release of nitrogen gas molecules. When transparent crystals allow for more than just surface reaction, this reliably results in photodynamic behavior.

The aim of this project is to determine the solid-state photoreactivity of *o*-azidostilbene and compare it to that in solution to better understand how the crystal packing controls its product formation and photodynamic behavior. The solid-state photoreaction mechanism for *o*-azidostilbene was elucidated with laser flash photolysis and correlated with its X-ray structure.