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Linear Templates: Tools for Constructing Molecules in the Solid State. Leonard MacGillivray, Dept. of Chemistry, Univ. of Iowa, 423B Chemistry Bldg. Iowa City, IA 52242 USA.

The application of molecular templates to direct reactivity in the solid state is described. Specifically, molecules that function as linear templates are demonstrated to provide control of the [2+2] photodimerization in the solid state such that it is possible to use the templates as tools to conduct target-oriented molecular syntheses, or molecular syntheses by design. The degree of organization provided by the solid state is thus shown to provide chemists a reliable means to capture and transform ordered complexes formed by way of hydrogen-bonded-driven self-assembly into complex molecules (e.g. molecular ladders).