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Halogen Bonding: a useful tool for crystal design. Jeffrey L. Harris,[†] Brian T. Holmes,[†] Clifford W. Padgett,[†] Timothy W. Hanks,[§] and William T. Pennington,[†]Dept of Chemistry, Clemson Univ., Clemson SC, [§]Dept of Chemistry, Furman University, Greenville SC.

Halogen bonding, the solid state interaction of Lewis bases with halogen atoms, is reasonably strong and highly directional making it an ideal tool for rational crystal design. We have prepared a wide variety of halogen bonded complexes, most often involving N \cdots I interactions. Work on a variety of topics will be reported, including: the use of the Lewis acid guest as a structural auxiliary for solid state interconversion of polymorphs; the design of complexes with polymerizable donors, such as diacetylenes and olefins, for the preparation of porous materials; preparation of pseudo-polyiodide complexes in which an iodide anion serves as the Lewis base, with organoiodide Lewis acids.

