

**W0240**

**Complementary Features of Inorganic and Organic Halogens - Application To Crystal Engineering.** Lee Brammer, Fiorenzo Zordan, Guillermo Mínguez Espallargas, Stephen L. Purver, Luis Arroyo Marin, Harry Adams. Dept. of Chemistry, Univ. of Sheffield, Sheffield S3 7HF, UK.

Halogens have been demonstrated to be effective hydrogen bond acceptors when bound to metal centers (M–X), wherein they serve as Lewis bases in interactions with typical hydrogen bond donors (N–H, O–H, etc.). By contrast, organic halides (C–X) are extremely poor hydrogen bond acceptors, but known to participate in so-called halogen bonds, wherein the C–X group plays a Lewis acidic role by virtue of its vacant  $\sigma^*$  orbital, *viz.* N $\cdots$ X–C, O $\cdots$ X–C.

Recently we have explored the possibility of combining these two contrasting but complementary capabilities of halogens to provide an effective interaction (M–X $\cdots$ X'–C) that may be applied as supramolecular synthon in the construction of supramolecular assemblies in crystals. Examples using both neutral and charge-assisted interactions of this type will be discussed and a comparison of the behavior of different halogens (X) will be explored.