

Title: Dancing in a Chemical Graveyard

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Abstract

With a few exceptions, organic and other synthetic chemists have traditionally neglected the solid state as a medium for chemical synthesis. This is best reflected by a colorful remark “Ein Kristall ist ein chemischer Friedhof” (a crystal is a chemical graveyard), that was ascribed to the Nobel Prize winner Lavoslav Ružička.^[1] However, the past few decades have witnessed the (re)emergence of the solid state as a reactive environment that can provide the reaction diversity and synthetic freedoms that match, or can even exceed, those found in the more traditional solvent environments.^[2] This presentation will highlight such developments and illustrate the importance of X-ray diffraction in understanding such solid-state transformations, focusing on selected examples of mechanochemical reactions accomplished by ball milling^[3] and on accelerated aging^[4] reactions, induced by exposing reactants to different vapor atmospheres.

[1] *CrystEngComm* **2011**, *13*, 4303.

[2] Do, Friščić *ACS Centr. Sci.* **2017**, *3*, 13.

[3] Do, Friščić *Synlett* **2017**, *28*, 2066.

[4] Cliffe *et al. Chem. Sci.* **2012**, *3*, 2495.