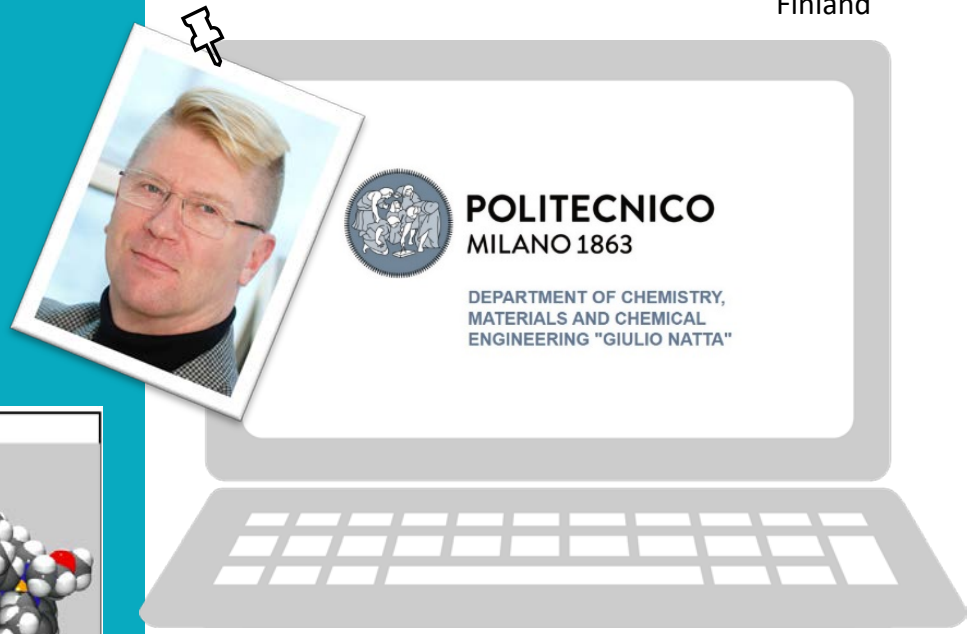
Virtual DCMIC Seminar Series 2021

Seminar #2.4
February 26, 2021, 11:30 am

Supramolecular crystallography (interplay of intermolecular interactions in the solid-state)

Kari Rissanen

Department of Chemistry, University of Jyväskylä, Finland



An exciting research challenge in supramolecular chemistry is to design, synthesize, and characterize nano-sized architectures with applications in biology, chemistry, and materials science.[1] Predicting and designing non-covalently bound supramolecular complexes and assemblies is difficult because of the weakness of the interactions involved, thus the resulting superstructure is often a compromise between the geometrical constraints of the building blocks and the competing weak intermolecular interactions.[2]

Our research interest has been focused on the studies of weak non-covalent intermolecular, viz. supramolecular interactions as the driving force in self-assembly and molecular recognition, especially in the solid state by single crystal X-ray diffraction. The lecture will highlight some of our recent studies on hydrogen[3] and halogen4 bonded systems, π -π^5 , CH…anion6 , and anion… π^7 interactions and metal ion coordination[8] in molecular self-assembly and molecular recognition in various systems such as resorcinarenes, ditopic receptors, rotaxanes, M_4L_6 tetrahedra, M_8L_6 cube, spheres, knots, etc..

References

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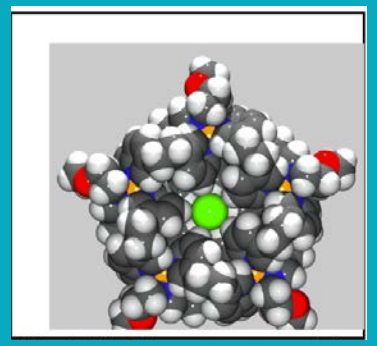

Fig. 1. The X-ray structure of the pentafoil knot. [8b]

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