Series and Volume Editor

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Editorial Board

Preface

During the last two centuries synthetic chemists have developed a remarkable degree of control over molecular architecture. Currently organic and inorganic chemists are able introduce a wide range of substituents in predictable positions on increasingly more complex molecular scaffolds and even control the three dimensional stereochemistries at particular chiral centres. Indeed only the skill and imagination of an individual chemist limits the range of molecules he is able to produce. This process has been accelerated by the synergic nature of synthetic chemistry and spectroscopic and structural techniques which have confirmed the three dimensional structures of molecules.

A new frontier of chemistry has opened up in recent years which requires the development of analogous but new principles and methods which will enable chemists to predict how molecules interact with one another in the solid state. Indeed if we are to progress as "crystal engineers" as we have as "molecular engineers" we have to understand more predictively the factors which determine the three dimensional structures taken up by aggregates of molecules in the crystalline state. Therefore molecular recognition, material science, crystal engineering, nanotechnology, supramolecular chemistry the current goals of chemistry share the need to understand the very subtle factors which determine the way in which individual molecules come together in larger aggregates. In its most general form this is indeed a major problem because intermolecular forces are not very strong and are not very directional. However, this problem should be more amenable if there are groups on the surface of the molecules which are capable of hydrogen bonding. Not only are hydrogen bonds strong relative to other intermolecular forces but also they are more directional. Therefore, many groups have focussed their skills on the design of molecules with hydrogen bonding capabilities which can assemble in more predictable ways. These Volumes bring together recent results from a range of leading research laboratories and define the current advances in this area. We still have a long way to go for a complete understanding, but these Volumes demonstrate that rapid and exciting progress is being made.

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