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SOME EMERGING FIELDS OF CHEMISTRY

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ABSTRACT

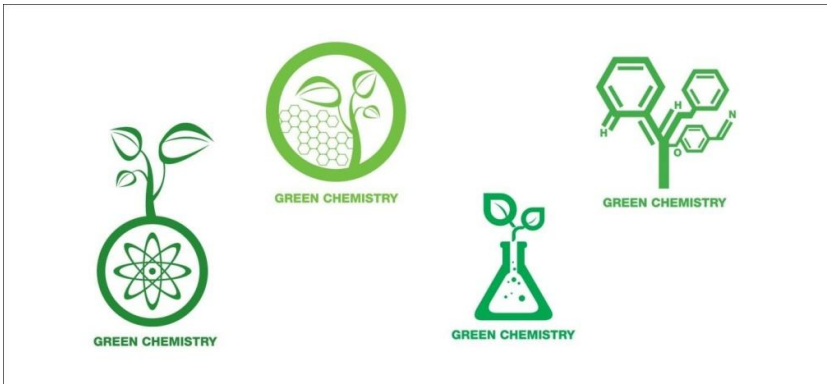
Chemistry is a branch of Science that involved the compounds that consists of combination of atoms. This particular scientific discipline is actually focused on study of matter. General concept of people is that the chemists are "white-coated scientists" who mix strange chemicals in laboratory or play with dangerous chemicals including acids.

In this review we want to throw light in some of the emerging fields of Chemistry that has attracted the attention of scientists all over the world.

KEYWORDS: *Adolescent population occupies , Knowledge, attitude and practice of menstrual hygiene.*

GREEN CHEMISTRY

Green Chemistry is developed by the two scientists Paul Anastas and John Warner. Paul T. Anastas is sometimes called the father of Green Chemistry. Breaking down the conventional concepts, Green Chemistry introduces the concept of using the less hazardous chemicals, safer solvents and uses of renewable raw materials.



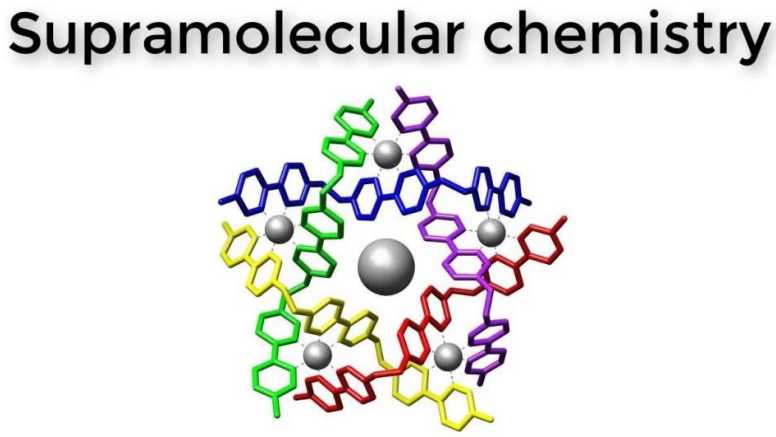
Sometimes Green Chemistry is also called sustainable Chemistry. It is an interdisciplinary area which falls into the area of Chemistry and Chemical Engineering.

In recent decades Green Chemistry is required to prevent our environment and our planet as well. Using of different chemicals for crop protection in agriculture is dangerous both for the environment and our health. Although some organic fertilisers are available still we need some greener version.

Global warming is a big issue now-a-days. This is directly related to ozone hole. So Green Chemistry needs to be applied.

SUPRAMOLECULAR CHEMISTRY

Supramolecular Chemistry has drawn the interest of scientists from last few decades. Supramolecular Chemistry is the "Chemistry beyond the molecules". Non-covalent forces are the basis of Supramolecular Chemistry. These forces include weak intermolecular forces of attraction, electrostatic interaction and hydrogen bonding interactions. Emil Fischers' "Lock and Key" mechanism is an important concept in this field regarding the recognition process. These non-covalent forces form bonds that require low energies and often no energy of activation is required for their formation. Concept of chemical equilibrium shows that at higher temperature these supramolecular complexes will be destroyed.

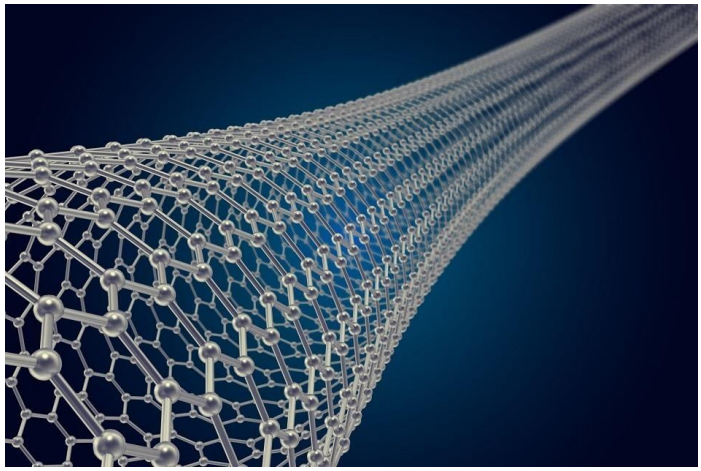


Molecular recognition is a term associated with the specific binding of guest molecules within the complimentary binding cavity of the host molecules. Supramolecular Chemistry in other words can be expressed as study of molecular entities assembled by means of different molecular interactions. Huge applications of Supramolecular Chemistry made it more versatile and attractive in nature. Some related fields of this interesting area are crystal engineering, supramolecular polymers, molecular capsules, self-assembly etc. Highly interdisciplinary nature of Supramolecular Chemistry attracts the attention of chemists as well as biologists, physicists, biochemists, theoreticians etc.

The Noble Prize in Chemistry has been awarded to three scientists Donald J. Cram, Jean- Marie Lehn and Charles J. Pederson in 1987.

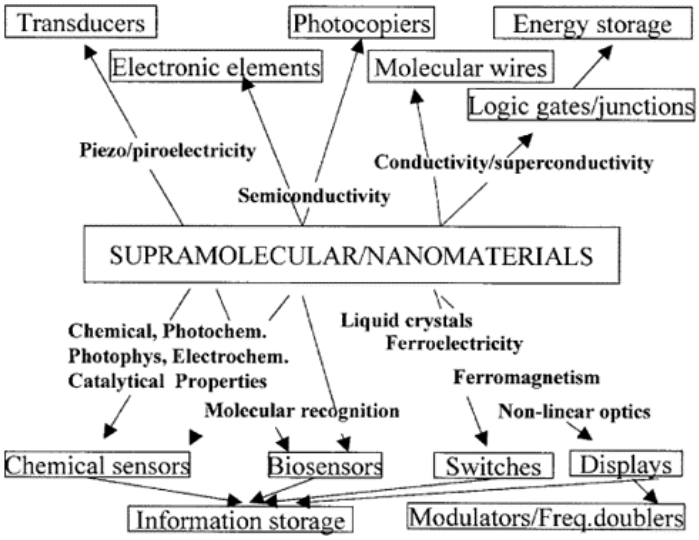
If we have a glimpse in nature we can see thousands of examples of Supramolecular Chemistry. Nature is the mother of Supramolecular Chemistry. Starting from DNA binding to ion transport, Supramolecular Chemistry has immense application. It has strong footprints in the fields of medicine, supramolecular catalysis, nanotechnology and molecular devices. Developments of molecular switches or molecular devices which can be applied for sensing, photo-switching and transport processes have become major focus of Supramolecular Chemistry.

NANOCHEMISTRY



The crisp term nanochemistry is the combination of nanoscience and Chemistry. This is mainly focused on the synthesis of building blocks of different size, shapes, surfaces and defect properties. The term nano is associated with nanometer-scale-size materials.The transformative power of nanochemistry has been has been shown by different materials like silica, gold, cadmium selenide, iron and most importantly carbon.

It has major applications in the field of medicine, drug delivery, tissue engineering, nanowire composites, nanoenzymes etc. nanochemistry has an important application in lab-on-a-chip technologies. This method has been applying to carry out complex chemical reactions on an "ultra-small scale". It also has applications in combinatorial chemistry, in the synthesis of chemicals efficiently. Nanochemistry plays an important role in the fields of biology, chemical and clinical analyses.



Supramolecular Chemistry and Nanochemistry can combined and be expressed as follows.

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