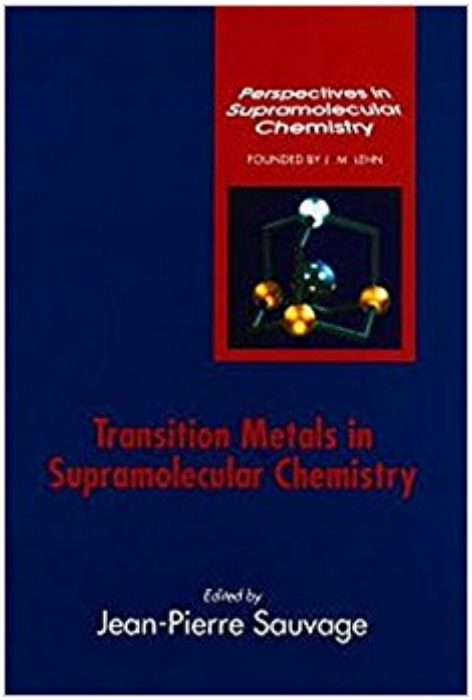
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Transition Metals In Supramolecular Chemistry (Perspectives In Supramolecular Chemistry)



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Synopsis

Perspectives in Supramolecular Chemistry will relate recent developments and new exciting approaches in supramolecular chemistry. In supramolecular chemistry, our aim is to understand molecular chemistry beyond the covalent bond - the series will concentrate on goal-orientated supramolecular chemistry. Perspectives in Supramolecular Chemistry will reflect research which develops supramolecular structures with specific new properties, such as recognition, transport and simulation of biosystems or new materials. The series will cover all areas from theoretical and modelling aspects through organic and inorganic chemistry and biochemistry to materials, solid-state and polymer sciences reflecting the many and varied applications of supramolecular structures in modern chemistry. Transition Metals in Supramolecular Chemistry Edited by Jean-Pierre Sauvage, UniversitÃƒÂ© Louis Pasteur, Strasbourg, France The chemistry of weak forces and non-covalent interactions as pioneered by Pedersen, Lehn and Cram is considered to be the origin of modern supramolecular chemistry. 30 years ago transition metals and their complexes were not regarded as important to this science. Transition Metals in Supramolecular Chemistry clearly demonstrates that today, transition metal complexes are routinely used to build large multicomponent architectures which display new and exciting applications including molecular switches, liquid crystals, and molecular magnets. Contents * Ligand and Metal Control of Self-Assembly in Supramolecular Chemistry * Bistability in Iron (II) Spin-Crossover Systems: A Supramolecular Function * Luminescent Sensors with and for Transition Metals * The Chirality of Polynuclear Transition Metal Complexes * Design and Serendipity in the Synthesis of Polynuclear Compounds of the 3d-metals * Rotaxanes: From Random to Transition Metal-Templated Threading of Rings at the Molecular Level * Metallomesogens - Supramolecular Organisation of Metal Complexes in Fluid Phases * Self-Assembly of Interlocked Structures with Cucurbituril Metal Ions and Metal Complexes Reflecting contemporary science, Transition Metals in Supramolecular Chemistry will inspire scientists and students interested in coordination chemistry, magnetochemistry, molecular sensors and switches, liquid crystals and artificial systems.

Book Information

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Customer Reviews

Authored by a winner of the 2016 Nobel Prize in Chemistry Jean-Pierre Sauvage, Sir J. Fraser Stoddart and Bernard L. Feringa were awarded the 2016 Nobel Prize in Chemistry for the design and synthesis of molecular machines. In the early 1980s, Jean-Pierre Sauvage led a research group that developed a way to control molecules by using copper ions, laying the foundation for developing a new kind of molecular bond: a mechanical bond. Sauvage worked with J. Fraser Stoddart to practice controlling this technology. One of their experiments developed a series of molecular-level chains formed into complex knots. J. Fraser Stoddart would help make the leap from chain to functional machine. He led a research group that developed a rotaxane, a ring-shaped molecule mechanically attached to an axle. By 1994 Stoddart and his research group could control the movement of the ring across the axle.

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In 1999, Bernard L. Feringa and his research team took the next step in molecular machinery by creating the first molecular motor. By 2014 they had optimized the design to rotate up to 12 million revs per second. The work of Sauvage, Stoddart, and Feringa is groundbreaking, and its applications diverse and exciting ÃƒÂ¢Ã â ¬Ã â œ from nanorobots to computer chips to new sources of power. Find out more about this Nobel Prize topic in the new book 'The Nature of the Mechanical Bond: From Molecules to Machines' by Carson J. Bruns, and Nobel Prize winner Sir J. Fraser Stoddart. Source: The Royal Swedish Academy of Sciences. Images: Johan Jarnestad/The Royal Swedish Academy of Sciences.

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"....a well constructed and stimulating guide to the ever-growing area of metallic supramolecular chemistry....",(The Alchemist) "...the book is essential for every chemistry library...",(Angewandte Chemie)

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