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Nature of chemical elements

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The main problem is that using X-rays, we have determined the crystal lattices of different materials, and why they are so, and why not others are not yet known. For example, copper crystallizes in the fcc lattice, and iron in the bcc, which becomes fcc on heating, this is used for heat treatment of steels. Copper does not change the crystal lattice when heated. There are many factors affecting the crystallization in the literature, so they decided to remove them as much as possible, and the metal model in the article, say so, is ideal, i.e. all atoms are the same (pure metal) without inclusions, without implants, without defects, etc., using the Hall effect and other data on properties, as well as the calculations of Ashcroft and Mermin. My main determining factor for the type of lattice was the core of the atom or ion, which resulted from the transfer of some electrons to the conduction band. It turned out that the metal bond is due not only to the socialization of electrons, but also to external electrons of atomic cores, which determine the direction or type of the crystal lattice. The change in the type of metal lattice can be connected with the transition of an electron to the conduction band or its return from this zone; phase transition. It is shown that in the general case, the metal bond in the closest packages (hec and fcc) between the centrally chosen atom and its neighbors is presumably carried out by means of nine (9) directional bonds, in contrast to the number of neighbors equal to 12 (twelve) (coordination number). Probably the "alien" 3 (three) atoms are present in the coordination number 12 stereometrically, and not because of the connection. The answer is to give an experimental test.

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Synthesis and characterization of supramolecules and its applications as a chemosensor for drugs

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The monitoring of pharmaceutical drugs in the environment is of great importance word wide. For example, in Karachi Pakistan due to contaminated water six children were died and about 200 were filling ill in 2005. A large number of pharmaceutical drugs in highly alarming amount were found in different components of drinking water (surface water, drainage, and effluent) of Karachi in the microgram-per-liter range during bioassay directed chemical analysis. The photophysical evaluation of supramolecular organic molecules as optical probes for detection of water toxins has been recognized to be very selective, sensitive, and economical as compared to the previously used methodologies. Synthesis, characterization and molecular recognition properties of fluorene based supramolecular cleft is reported. The cleft molecule was prepared in a single-step with good yield (85% yield), by linking Fluorene with 1-ethyl piperazine. The cleft molecule was carefully characterized using various spectroscopic techniques such as NMR and mass spectrometry. The supramolecular interaction of cleft with amoxicillin, 6APA, aspirin, captopril, cefotaxime, ceftriaxone, cefuroxime, diclofenac, penicillin, and cephradine was evaluated by fluorescent spectroscopy. The molecular recognition studies showed that amoxicillin selectively binds with cleft in the presence of other drugs. The analytical method developed for the supramolecular interaction of molecular cleft and amoxicillin was validated at varying pH, concentration and temperature during recognition process. Job's plots indicated that the stoichiometry of the interactions between the cleft and the amoxicillin was 1:1.

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