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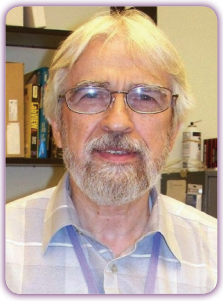

Stoyan Sarg Sargoytchev
World Institute for Scientific Exploration, USA

Graphical 3D modeling of molecules and nanostructures in sub-nanometer scale with the BSM-SG atomic models

The nanomaterials exhibit some new physical properties which are difficult to predict by Quantum mechanical models. At the same time, the physical processes in the nanostructures are in the scale where quantum mechanical effects take place. Quantum mechanics (QM) by definition works only with energy levels. Therefore a complimentary physical models are needed using a physical dimension of length. QM also does not predict the chemical bond direction, It cannot provide a classical explanation of the spin of the electron, proton, neutron and the atomic nucleus, why the neutron has a magnetic moment and the electron has anomalous one, what is the size of the Rydberg state of atoms and so on. The definition of Coulomb barrier, according to QM models, also makes impossible to explain some observed nuclear transmutations at low temperature or so called LENR processes. These and other problems lead to the conclusion that QM is a mathematical model only. A new look into the scattering experiments also leads to this conclusion, since they have only angular resolution, while an assumption is used that all elementary particles and atomic nuclei have a spherical shape. A different shape will affect the data interpretation significantly. The physical models of atomic nuclei derived in the Basic Structures of Matter Supergravitation Unified Theory (BSM-SG) provide classical explanations of the above-mentioned problems. The BSM-SG atomic models are suitable for 3D graphical modeling and analysis of complex molecules and nanostructures with sub-nanometer resolution.

Biography

Stoyan Sarg Sargoytchev obtained his PhD in physics from Bulgarian Academy of Sciences in 1984, while working on space research projects of program Intercosmos coordinated by former Soviet Union. From 1990 he was a visiting scientist at Cornel University. From 1992 he took positions of scientist at Canadian government institutions working on space and atmospheric research. His participation in diversified interdisciplinary projects inspired him to develop his theoretical work Basic Structures of Matter – Supergravitation Unified Theory. After first publishing in 2001, he published articles, reports in conference proceedings, application developments and books by amazon.com. He retired from York University in 2013. And he is now working with World Institute for Scientific Exploration.

stoyans@cse.yorku.ca