A Proposal of Multidimensional Theory for Determining Electron Capacity Numbers in Atomic Entities of Other Dimensions

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An understanding of dimensional transfer will broaden the use of space and may help us address problems related to the limited global environment. Therefore, to elucidate the m-dimensional world, this study focused on the expansion of atoms to m dimensions. First, using the relationship between the number of particles and hypervolume, the gas law, rate equation, and equilibrium constant are expanded to m dimensions. Next, the solution of the Schrödinger equation and the Stern–Gerlach experiment are expanded to specific dimensions. This enables the treatment of electron orbitals and spin for some dimensions and demonstrates the feasibility of the prediction of the dimensional expansion of electron orbitals and spin in terms of quantum numbers. The periodic table is also expanded using a method to determine the number of electron accommodations in m-dimensional atoms from predictions of the electron orbitals and spin. This shows a conservation relationship, indicating that when a substance is expanded to a higher dimension and then returned to its original dimension, its elements remain unchanged. Thus, the possibility of dimensional transfer is chemically demonstrated. Moreover, the prediction of spin in other dimensions led to the expansion of the covalent bond to m dimensions. Finally, a numerical method is applied based on the expansion of benzene. Consequently, an effective solution is presented for the kissing number problem in a wide range of dimensions, from one to six. In future research, the proposed theories and solutions methods will be further developed, and a method of dimensional transfer will be devised.