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Basic Equations Interrelate Atomic and Nuclear Properties to Patterns at the Size Scales of the Cosmos, Extended Clusters of Galaxies, Galaxies, and Nebulae. ROB ALLEN, Retired — Structures within molecules and nuclei have relationships to astronomical patterns. The COBE cosmic scale plots, and large scale surveys of galaxy clusters have patterns also repeating and well known at atomic scales. The Induction, Strong Force, and Nuclear Binding Energy Periods within the Big Bang are revealed to have played roles in the formation of these large scale distributions. Equations related to the enormous patterns also model chemical bonds and likely nucleus and nucleon substructures. ratios of the forces that include gravity are accurately calculated from the distributions and shapes. In addition, particle masses and a great many physical constants can be derived with precision and accuracy from astrophysical shapes. A few very basic numbers can do modelling from nucleon internals to molecules to super novae, and up to the Visible Universe. Equations are also provided along with possible structural configurations for some Cold Dark Matter and Dark Energy.

Rob Allen
Retired

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