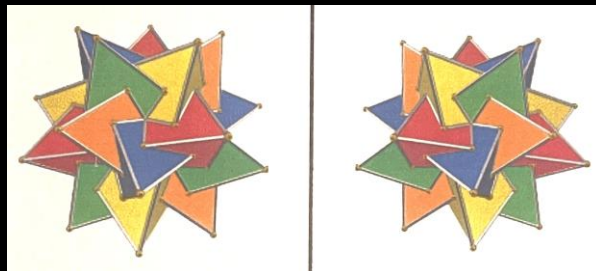# *I Ching*, Multiple Dimensions, and **Hyper-Spherical Geometry**

The book's goal is to create a system of mathematics based on the tetrahedron, a solid geometric shape with four triangular faces. The book's premise is that the *I Ching* is man's oldest group. This is demonstrated when the 8-trigrams and 64-hexagrams are considered to be unitary diagonal square matrices. They represent solutions over a unitary hyper-sphere for polynomial equations. The 64-hexagrams define a master group, **G64** that unifies all the Platonic solids. The Platonic solids are used to define a physical foundation for this geometry starting with the tetrahedral group **G8**.

Group theory is a branch of mathematics that studies symmetry and how objects can be transformed. Matrices are grids of numbers used in mathematics to represent transformations or movements. Together they both describe transformation. This is why they are used in the construction of this mathematics. The above mirror image of a star icosahedra dual is important. They demonstrate the first decomposition of **G64**, into two subgroups of 32-elements. Each subgroup is constructed with five tetrahedra. A group must have this decomposition property. A group will decompose down to the group identity, which **G64** does.

 A complex hyper-sphere is pictured as a dual sided bubble, which allows simultaneous mapping of both left-handed coordinate systems internally and right-handed coordinate systems externally. Together they create a dual framework for transformations. Imaginary numbers are defined by the secondary diagonals of matrices and are initially mapped to the inside surface of the hyper-sphere. The challenge is to construct, on a solid foundation, a consistent and understandable mathematics. The book accomplishes this and promises to teach you to visualize and to know where the thirteen-dimensions, twelve plus time, exist in our everyday life.

The book's forward will tell you more about James.

James has been in love with mathematics for 13 years of academic study and ever since. While in college, he attended a seminar by R. Buckminster Fuller, which started him on the goal of creating a system of Mathematics based on the tetrahedron. He graduated from the University of California, Hayward, in 1971 with a Bachelor of Science in Physical Science and an Anthropology minor. Surviving multiple near-death experiences during three Vietnam tours and again on mount Shasta, gave him the insight to author multiple mathematical papers and finally publish, *Optimal Spherical Packing of Circles and Hilbert's 14th Problem*, in Visual Mathematics, Belgrade, Serbia.