

Making Subatomic Particles and Atoms from Blank Pieces of Paper

David G. Glynn

CSE, Flinders University, South Australia

Bringing blank A4 sheets, (paper or light cardboard) in three colours red, yellow and black, a pair of scissors, and paper glue, we make tetrahedra in three colours, that glue together into models of subatomic particles and atoms in a tetrahedral 3-d honeycomb. Physics, like the weak decay of a free neutron into a proton, electron and antineutrino, or an atmospheric pion changing into a muon and then into an electron when it reaches ground-level, or a solar neutrino oscillating into a different flavour by the time it reaches earth, may be given interpretation, much as chemistry describes the disassociation of water into hydrogen and oxygen molecules. The equations we obtain are consistent with respect to charge and spin, predicting the catalysts of reaction. We illustrate how models of atoms are created, with usually more neutrons than protons, and explain where dark matter might be found. The tetrahedron, or more precisely, the complete planar graph with four vertices, explains Desargues' theorem in 2 or 3-d space. It also explains another fundamental theorem of eight points and six planes based on the cube.