Note: All spheres shown below touch their adjacent neighbors, and all spheres belonging to the same 'set' are equal in size. The W⁺, W⁻ bosons have equal mass, but opposite charge. All relative mass estimates assume mass proportional to volume. 1 of 3 Z⁰ our Est. for Bosons around mass or 'Vol.' 1 of 3 small spheres inside 3 small spheres of Z⁰ Boson: of a proton (in a simple .099963 from inside a proton 96.964 **Protons** triangular array) proton (vs. 97.187 empirical value) **Proton** We use 1 Based on the empirical Z⁰ of 3 sm. mass, 97.187 protons, the small sphere shown spheres, has mass = 0.97115 protons. And in the sketch all inside directly below that small sphere, (bottom right 1 of 3 bigof page), we build a tetrahedral array of 4 large ger spheres, spheres around that small sphere, each our all inside 1 W⁺, W⁻, boson mass est. = 85.549 protons vs. of 3 lq. Z⁰ boempirical value 85.667 protons. sons (like a 'Sierpinski Triangle fractal') a 2nd Way to Est. W⁺, W⁻⁻, mass described below, without sketches: Ref. 1 LG. sphere around a 'platonic array' of 12 spheres close-packed around a platonic array of 20 spheres around a 'core sphere'. That core around a platonic array of 6 spheres our Est. for close-packed around a platonic array mass of a 1 of 8 electron masses. (Core sphere w⁺, w-, / result = 1175.0 electron masses.) Boson: The Ref. 1 LG. sphere, our 2nd Way 85.549 \ to Est. W⁺, W⁻ boson mass, comes protons. out = 157.039 electrons, or 85.526 protons vs. empirical value 85.667 .1st Way, (main way), to Est. W⁺, W⁻⁻, 2nd Way to Est. W⁺, W⁻, Boson boson masses giving 85.549 protons Masses as Described above

Dwg; Ways to Construct and Est. Masses of Z^0 & W^+ , W^- , Bosons Using upper sketches and a proton's substructure, we Est. the Z^0 boson mass = 96.964 protons, vs. 97.187 empirical value. At lower right sketch and just above it, we use an empirical Z^0 boson's substructure to Est. mass of W^+ , W^- , bosons = 85.549 protons, vs. empirical 85.667 value. At lower left, we described, without sketches, a Est. Est

vs. an empirical value 85.667 protons