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BUCKYBALL MORPHOLOGY

EXHIBIT: Poster presentation

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I propose to exhibit four posters: the first three depict theoretical phases in the morphology of the buckminsterfullerene, the third form of carbon commonly referred to as the "buckyball." The fourth poster presents my unique suture system for generating both classical and hybrid polyhedra.

With a glide/reflection symmetry operation, the C-60 and C-70 buckyballs transform into each other. The glide translation between strings is like that of a strike slip fault in geology. Cell biologists call the ring component "cleavage furrow" and those who study the buckball anatomy have called it "waistband." It is in this wavy equatorial foundation suture ring where the fundamental structural junctions and separations take place to transform the C-60 into the C-70 buckyball and back again.

Poster No.1 shows the glide/reflection symmetry operation that mediates the interactive space between the hemispheres of the C-60 and C-70 buckyballs.

Poster No.2 shows the unique components of my

polyhedral generating system (strings, nets, caps and rings) and their assembly into buckyballs. Buckytubes are produced by stacking the rings.

Poster No.3 shows the revolutionary way of generating the two buckyball configurations within their 2-3-4-5 and 6-fold family groups.

Poster No.4 shows a dial that generates both classical and hybrid polyhedra. With this dial, the wavy equatorial ring can be closed, top and bottom, with matching caps and produce a classical polyhedral lattice or the caps can be mismatched to produce a hybrid polyhedral lattice. Eighty polyhedral lattices that generate from the dial are shown as a symmetry wheel. The buckyball morphology emerged from this generating process.

Example: two classical lattices and one hybrid



