May 2003

NY ARTS

SCI-ART: It's all in the GUT (Grand Unified Theory)

M-1000

For the past couple of months, New York has been hosting the "DNAge Citywide Festival for the 50th Anniversary of the Discovery of the Double-Helix." Numerous arts exhibitions including "How Human: Life in the Post-Genome Era" are being held at the International Center of Photography (ICP) (through May 25). Ever since the cloned sheep Dolly made its entrance into the world, the development of genetic research has introduced new understanding of today's science and its startling research capabilities. At times, as instigator or skeptic, the artist stands with scientists, sometimes steps ahead and questioning the meaning to it all.

Other than the hype over DNA research however, a new landscape of science-art explorations is surfacing. In the forefront of celebrating sciences, there is the world of physics. Currently, scientists and artists are focusing their attention on Albert Einstein and his legacy. The field of quantum physics makes its voice heard through an up lifting exhibition, "Einstein," showing at the American Museum of Natural History in New York (through August 10, www.amnh.org). This show elaborately displays biographic documentation of Einstein's life as well as the history and the makings of his life's scientific work. Most importantly, this exhibition has become a great catalyst for artists to revisit or re-introduce their work dealing with the world of theoretical physics, and especially artwork inspired by Einstein's Grand Unified Theory or GUT.

Einstein once mentioned that "God does not play dice with the Universe," implying that there was a certain unified order to the world. GUT (also known as Unified Field Theory) argues that before the Big Bang explosion there was a moment of singularity. In cosmic history, the moment of singularity meant that all four forces of the Universe (gravity, electro-magnetic force, nuclear strong and nuclear weak forces) existed as a single force. It is no wonder that an omnipotent being is usually alluded to when a Universe is thought of as originating from an absolute single force explaining its causation. There is a level of mysticism to mathematical concepts that reveal the fundamental laws and constants of nature. The mathematical concept PI (3.14…), Fibonacci's Golden Section numbers (±0·61803 39887... and ±1·61803 39887…) and the Alpha constants (137.03599976) are just some that project evidence in this perspective of scientific and mathematical world order. Today, the most recent development of GUT theory is known as the superstrings theory, a theory that speaks about multiples of curled up and tenth dimensional Universes with an underlying common thread of existence: that all things at their most microscopic level are made up of vibrating energy string loops. As artists contemplate about the origin of human and cosmic existence,

this sort of harmonized world order and its theological connotations has become a topic of artwork.

For starters, to match the theme of the “Einstein” exhibition, Cynthia Pannucci, founder of the Art & Science Collaborations, Inc. (ASCI, www.asci.org), brilliantly orchestrated the annual “DIGITAL ’02” exhibition and “ArtSci2002” International Symposium to work in conjunction to honor Einstein, reflecting on his influence on art and science collaborations today. The digital print show entitled, “Envisioning Time, Space, and the Future” was the 5th International Competition exhibition (juried by Julia Van Haaften) that was exhibited at the Technology Gallery, New York Hall of Science and the Taranto Gallery, Chelsea, New York, during the fall and winter of 2002. Over 20 artists, scientists, and hybrids of the two, all showed artwork in a form of digital printmaking. The common theme carried by the prints were scientific phenomena or technologies that have been developed as a result of Einstein’s influence such as X-rays, MRIs, GPS, etc. (http://asci.org/digital2002/)

For ASCI’s “ArtSci” symposium component, the keynote event took place at the Museum of Natural History, with the presentation of one of the most interesting art-science collaboration that dealt precisely with superstrings theory. Brian Greene, a physicist and author of the best selling book, The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory, (W.W. Norton & Co., Inc., ‘99) began the evening symposium with “Einstein’s Legacy Inspires New Art” and introduced a team-effort arts project titled Superstrings: A Multi-media Performance Celebrating Science and Art. With the collaboration of acclaimed choreographer Sandra Kaufmann, rising-star playwright and videographer Michael Bassett, classical to modern dance music composer Pat Daugherty, and with Greene’s theory as their inspiration, this production artistically portrays the multi-facet aspects to superstrings theory with a multi-media, dance-driven theatre event. A quantum theory that explains the makings of a world with fundamental elements known as vibrating strings is the perfect match for a theatre piece that uses the quantum metaphors of strings as musical notes or choreographed movements. Here, dancers represent vibrating strings while all of the other components, such as music, costumes, lights, and props, contribute to opening a dialog about the science of superstrings theory.

The media component of video in Superstrings also plays a crucial role in the piece. Bassett’s video projections show animation clips that are mirrored backdrop to the content of the play and visually illustrate different concepts of superstrings theory. The play was staged with one actor taking the part of two twin characters. This was possible due to the second entering the play as a video projection image. Thus, the single actor was playing two roles, one as the real physical self and the other as the virtual extension that would interact with the original self. In sense, the video component echoes another layer to the main actor’s character as a split of two personalities, one being a twin who is an architect living in the real world versus the other twin who is a jazz musician living in the quantum world. As in our cosmic world, for the beginning and the ending, the twins are united as a single person. It is as if before the Big Bang and after the Big Crunch, the moments of singularity in the Universe are held together with the superstrings theory that portrays a united single character in the play. Indeed, superstrings as the mother theory (theory of everything) of physics makes a whole lot of sense when you think of what the play represents with respect to the cosmic understanding of our quantum origin. For the future, this on-going project is being developed as a workshop and a traveling production for various cultural and educational venues. (http://asci.org/artsci2002/keynote.htm)

If superstrings theory can be translated as a range of harmonics, an installation project proposal called 95* Chimes by New York artist Debra Swack comes into mind. The proposal is based on the artist using the harmonics of chime to relate strings theory to music. Referencing ancient cultures such as the Egyptians or Hindus that explain 'sound' as the basic source of their creation mythologies, Swack takes the sound phenomenon as the core element of the modern science/creation mythology of superstrings. Swack states that since, "superstrings theory claims that all matter exists as a result of the harmonics created by unimaginably small vibrating strings, 95* Chimes provides a three-dimensional musical metaphor for these tiniest elements of matter and the vibrations, harmonies and energies they produce." The installation would have audio speakers projecting sounds of individually recorded wind chime noise that together resonate a piece of "sculptural" music. Depending on where you stood in the room, a difference in the level of blending and layering of the chime-based composition would slightly shift. (**speak@erols.com**)
Another artist Carol Pfeffer, who has a background in physics, is working on a project series called Unified Field Theory and Local Geometric Topologies. She has developed a cameraless contact technique to make one of a kind prints. To explore the process between the interaction of density and space, she uses watercolor and ink suspended in a transluscent medium and captures a moment of exposure. In the end, this image, captured by the exposed moment, is reversed by emulsion transfer. Pfeffer states that "this project interprets the inter-reaction of matter and space as a function of local topology challenging the popular String theory and other unified field theories. The work examines how density and mass behave in a local space and in turn how the local properties influence surrounding matter. Specific effects depend upon whether the local space is Euclidean, spherical or hyperbolic." (**P4pfeff@aol.com**) Furthermore, Agnes Denes, one of the pioneer artist of environmental art and a leader in art, science and technology integration recently had her retrospective, "Agnes Denes: Projects for Public Places," at the Samek Art Gallery of Bucknell University in Lewisburg, Pennsylvania. She was one of the first artists to write a scientific book titled, Book of Dust: The Beginning and the End of Time and Thereafter, (Limited Edition, Visual Studies Workshop Press, '89) and has made numerous artwork dealing with the GUT. (http://www.departments.bucknell.edu/samek_artgallery/denes.html)

M-1000 is the pen name of artist MINALIZA1000 (**minaliza1000@aol.com**).The SCI-ART article series is made possible with assistance from Art & Science Collaborations, Inc (ASCI). (www.asci.org) Since April 2003, a secondary publication of the SCI-ART article series has been translated into Korean and published in the Art Magazine Wolgan Misool, a monthly arts magazine of Seoul, Korea. (www.wolganmisool.com)
