The art of nanoscience

Ever wished you could interact with individual atoms? An exhibit at the Los Angeles County Museum of Art (LACMA) attempts to let you do just that. In "nano," which opened December 14, visitors can feel what it's like to mold atoms or walk through a quantum tunnel. They can experience the nano scale by comparing a single grain of sand to an entire sand sculpture or draw crystal shapes on a wall while wearing 3-D glasses.

Borrowing a page from Disneyland's 1960s-era "Adventure Thru Inner Space," nano's creators seek to convey how art, science, culture, and technology influence one another. Presented by LACMALab in collaboration with experts from UCLA and Caltech, the exhibition highlights the museum's goal to become a "cultural incubator," in the words of Walter L. Weisman, chairman of LACMA's board of trustees. LACMALab director Robert Sain observed at the exhibition's opening that the science world is turning to the art world to make its work visible.

Entering the exhibition's large central area, known as the "Inner Cell," visitors can use their shadows to shape and reshape screen images of carbon-60 molecules (known as buckyballs, after polymath Buckminster Fuller).
Rather than acting according to the classical laws of motion, the buckyballs move like microparticles would. Meanwhile, footsteps on the installation floor trigger sound effects, simulating "gravity waves," while large plastic "robot balls" float about. Moved remotely by visitors in the "atomic manipulation area," the balls simulate the movement of individual atoms in a scanning tunneling microscope (STM).

Part of the exhibit is designed to help participants grasp the electron tunneling phenomenon. The "Quantum Tunnel" is a corridor with identical rooms at opposite ends. When visitors stand in the rooms, their faces are projected on the two opposing walls. Then when an individual passes through the tunnel, the projected images become merged and distorted into particles and waves, simulating the tunneling action of an electron in an STM.

The project's installations were conceived and designed by UCLA design/media arts department chair Victoria Vesna, UCLA chemistry professor and nanoscientist James K. Gimzewski, and their graduate students. "Stop thinking of nanobots," insisted Vesna; shift from the notion that "nano is small" and think "that you are made of molecules."

Free to the public, "nano" runs through September 6 in LACMA's Boone Children's Gallery. Information: 323/857-6000 or http://nano.arts.ucla.edu/index2.htm. — BM