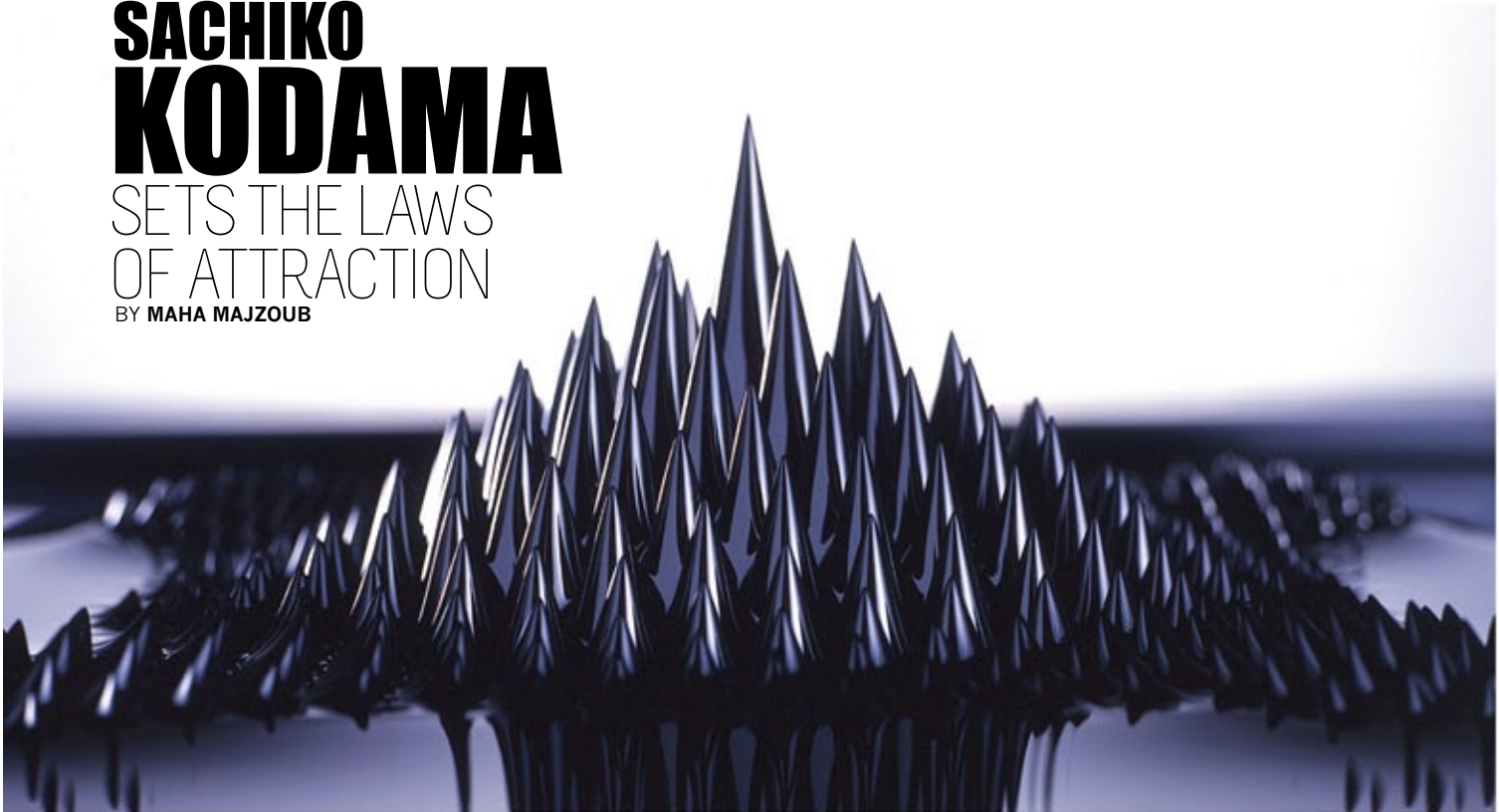


MAGNETIC APPEAL

SACHIKO KODAMA

SETS THE LAWS OF ATTRACTION

BY MAHA MAJZOUB



“IN MY WORK, THE SPIKES UNDER THE MAGNETIC FIELD PRODUCE ORGANIC FORMS. SENSORY TECHNOLOGY AND COMPUTERS ARE USED TO TRANSFORM THE SHAPE OF THE FLUID ACCORDING TO ENVIRONMENTAL INFORMATION”

ABOVE:
PROTRUDE, FLOW (2001)
BELOW:
ARTIST SACHIKO KODAMA

Your initial reaction is to look at it, and gaze and gaze at it for what will seem like hours on end. It appears to be a fluidic sculpture that just won't stop moving or pulsating. Next, you attempt to put two and two together. Your chances of grasping what exactly you're staring squarely at are pretty slim. At this point, you're hard pressed to ask, "What in God's name is going on?" – you and whoever else sees for the first time a ferrofluid installation by Japanese physicist-turned-artist Sachiko Kodama. And the sight doesn't get any less fascinating the second, third, or kazillionth time around.

Kodama is the prima donna of ferrofluid sculptures, which she first introduced in raw format to bemused and confused audiences in Eastern Asia a little over a decade ago. She has been exploring since then both the art and science of ferrofluid, as it sways with the shape of magnetic waves. Her terminator-esque, blackish, spiky, liquid structures, which dance restlessly before your incredulous eyes, are not as complicated in composition or mechanism as you might think. At play here is simply ferrofluid and electromagnets. The two make love choreographically and move synthetically to music, as controlled by the artist.



“THE JAPANESE CONCEPT OF MITATE, RELATING TO MIMICKING NATURAL PHENOMENA, IS A USEFUL METHOD IN TRYING TO UNDERSTAND THE OCCURRENCE OF NATURAL SHAPES”

It wasn't Kodama who invented ferrofluid, a slippery substance that comes into being by dissolving nanoscale ferromagnetic particles in a solvent, the likes of water or oil. Credit for that must go to NASA, the National Aeronautics and Space Administration, which in the late 1960s created the material, which now swims in electronic devices, AV equipment, and other industrial applications. However, it was Kodama who devised a real object that transforms freely and flexibly when other elements are introduced, thus embarking on a new class of fluid art forms that can adopt shapes interactively. But she's not exactly keeping mum about the process. Her favorite part of the work is to document her toils in video compositions she makes with Yasushi Miyajima of the Sony Computer Science Laboratories usually to a backdrop of chilling music by Tetsuhide Hidaka.

She has also penned numerous articles about the artistic innovation as well as its progression over the years. In the catalogue of the 2009 edition of Device Art, a triennial international exhibition on the art of devices and robotics, Kodama says her ferrofluid sculptures aim “to create dynamic art forms and figures whose shape, surface structure, and color change dynamically, reflecting the echoes of environmental music, light, and human communication.” “Ferrofluids,” she goes on, “form spikes along magnetic field lines when the magnetic surface force exceeds the stabilizing effects of the fluid weight and surface tension. In my work, the spikes under the magnetic field produce organic forms. Sensory technology and computers are used to transform the shape of the fluid according to environmental information.”

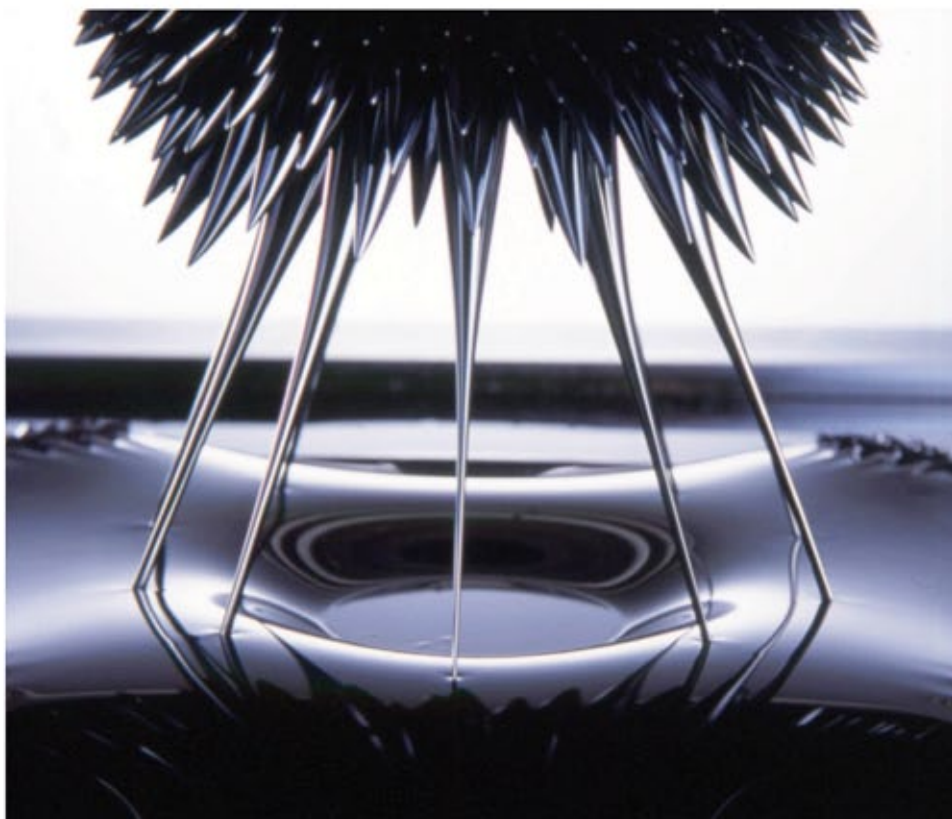
BELOW:
MORPHO TOWER (2006)



LIQUID ARCHITECTURE

Kodama constantly turns to the environment and life in all its forms for inspiration. “The breathing rhythm in living things is an excellent metaphor for a texture that dynamically changes according to time. The continuously changing weather conditions of the Earth are also important motifs,” the 41-year-old artist states. Having grown up in the southernmost part of Japan, which is brimming over with tropical organisms and edged by the sea, Kodama is happy to bring part of her childhood to her artistic experimentation and share it with the world. “My Little Sea”, the title of her exposition in Seoul in November, says a lot about her relationship with water and fluidity. “As a female artist, I feel that liquid is a metaphor for the woman. The material is soft, flexible, passive, beautiful, and strong,” she says. ▶

LEFT:
PROTRUDE, FLOW (2001)



CLOCKWISE FROM RIGHT:
PULSAR (2008),
PULSATE - EAR ON THE WALL (2007)

Kodama brings the ocean, tornadoes, and lightning to bounce gorgeously and grotesquely in “Morpho Towers: Two Standing Spirals”, a two ferrofluid sculpture installation which she revealed to the public in 2006. The spiral towers stand on a large plate holding ferrofluid. When the music starts, the magnetic field around the tower is strengthened. Spikes of ferrofluid are formed at the bottom of the plate and move up, trembling and rotating around the edge of the iron spiral. “The Japanese concept of *mitate*, relating to mimicking natural phenomena, is a useful method in trying to understand the occurrence of natural shapes,” reads a detailed description on her Website.

The technique in “Morpho Towers” involves the use of an extended sculpted iron core and one electromagnet. Her first project, “Protrude, Flow”, on which she collaborated with long time art partner Minako Takeno five years earlier, enlisted the help of six electromagnets. The cluster of electromagnets could have affected people’s viewing of the moving liquid – although that didn’t make the installation any less spellbinding. But shortly afterwards, Kodama would switch indefinitely to a single electromagnet backed by an extended iron core that can be molded into the shapes of choice, making it possible for the ferrofluid to cover the sculpted surface of the three-dimensional iron shape.

After “Morpho Towers”, Kodama and Takeno upped their game with an ingenious approach that equally engaged both young and adult viewers. “Pulsate – Ear on the Wall” is set in a white room, where a table, chair, and a little ear hang on the walls. The lighting of the room wraps down from the ceiling and onto the vertical wall. The off-centered placements of the furniture evoke another surreal space, defying the laws of physics. So when people speak to the ear, the ferrofluid in the dish is provoked and spiked up.

“APPLYING TECHNOLOGY TO ART TO MAKE ONE ‘PERFECT’ PIECE IS DIFFICULT. I HAVE TO WORK WITH MECHANICAL AND LOGICAL TECHNOLOGY, YET MY WORK NEEDS TO BE FINISHED IN A VERY DELICATE, ESTHETIC WAY”



“THE BREATHING RHYTHM IN LIVING THINGS IS AN EXCELLENT METAPHOR FOR A TEXTURE THAT DYNAMICALLY CHANGES ACCORDING TO TIME.”



ABOVE:
EQUILIBRIUM POINT (2004)
LEFT AND UPPER RIGHT:
MORPHO TOWER (2006)

BLACK IS BEAUTIFUL

Since then, Kodama's practice has gone from strength to strength, continuing to join forces with local artists and approaching most ventures as ongoing projects. This formula applies to "Pulsar", Kodama's personal favorite artwork to date, which she has yet to complete. It is a small iron sculpture in the form of a headless human body that stands in a slowly undulating pool of black liquid. A brass tube is positioned above the neck from which ferrofluid pours down. A magnetic force protrudes the ferrofluid into a flower-like shape with many spikes. The spikes make up the petals of this flower. When the magnetic force is gradually weakened, the petals fall down according to the contour of the metallic body. The decelerating speed of the ferrofluid and magnetic force are controlled to create a dynamic textural change that mimics the grainy surface of moss or goose bumps on human skin.

"Pulsar" only survived for a week in 2008 where it was shown at the Reina Sofia Museum in Madrid, its life cut short by a technical difficulty that Kodama hopes to overcome. "I have to finish this work before I die," she stresses, arguing, "Applying technology to art to make one 'perfect' piece is difficult. I have to work with mechanical and logical technology, yet my work needs to be finished in a very delicate, esthetic way." Working with magnets comes with its share of challenges, Kodama adds. "The shape of the electromagnet and the strength of its magnetic field offer some technical limits, which casts some limits on my designs."

When she is not trying to overcome such obstacles, Kodama is either beguiling audiences with her sculptures in solo or group shows in Eastern Asia and in recent years the U.S. and Spain, or lecturing at the University of Electro-Communication in Tokyo in her

capacity as associate professor. She holds a PhD in Art from the University of Tsukuba.

Though art and literature were enticing fields for Kodama from an early age, she found herself profoundly interested in science as well, first setting her eye on a career in physics before making the shift to fine arts in 1993. Her work always brings the best of both worlds to the table, which is probably why it magnetically appeals to art aficionados and science buffs alike. "Art could be more dynamic and rich than it is today," says Kodama, whom we have a feeling will continue to set new rules for attraction, unabated by any laws, physics or otherwise.

Kodama is currently exhibiting her latest colorful "Morpho Tower" sculptures at Input/Output Gallery, Hong Kong. The show continues until February 19 ■