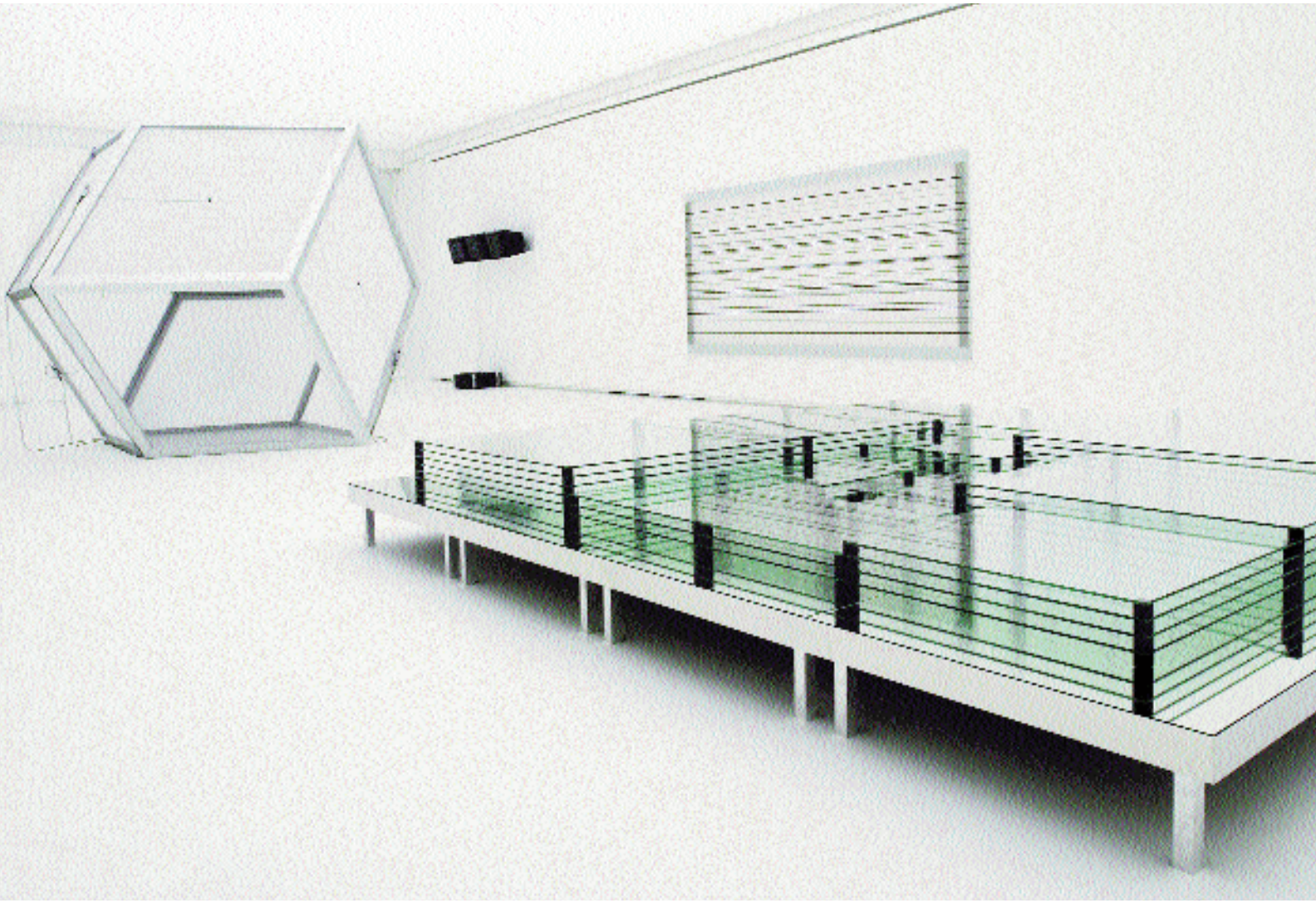


Crystalline Beauty in MATHEMATICAL SPACE

Carsten Nicolai

by Stefanie Bickel
Translation from the German by Anthony B. Heric

While visitors may have become accustomed to the Frankfurter Kunsthalle changing its look with every exhibition, this time it is absolutely unrecognizable. Climbing the stairs and entering the exhibition space is like being transported to another utterly, blindingly white world. The ceiling is hung with a transparent white fabric, the floor is white, the walls and lighting are all white as far as the eye can see. In this "white cube," there are aesthetic objects of extreme beauty—very exacting and minimal.

Carsten Nicolai's inspiration is polarity: bright/dark, reflective/absorptive, visible/invisible, positive energy/negative energy, yes/no, plus/minus. He presents phenomena rooted within these fields of tension, makes them visible and audible, and gives them physical form. In the Frankfurt Schirn Kunsthalle, this duality is given a structure. Polarity influences the entire layout of the exhibition. Two separate rooms are connected by a passageway, the first room very bright, the second extremely dark. Like the two works in the exhibition, one in each room, the rooms are also titled *reflex* and *anti*. The exhibition itself is a combination of the two—"anti reflex."

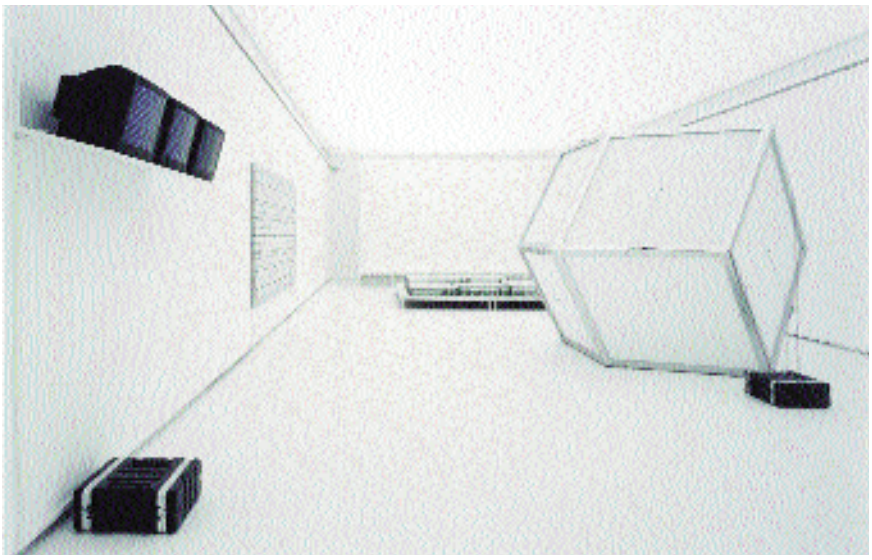
The connecting passageway acts as interspace. The walls are covered with small squares, themselves covered with very closely spaced fine black and white lines that create a shimmer and flicker on the visual cortex. They can be understood as visual rhythms, pulsing fields of varying colors. Behind this is the second room of the exhibition, counterpart to the first.

When first entering the bright room—*reflex*—a question intuitively comes to mind: Are these objects art, meaning "artificial objects without purpose," or are they items that Nicolai seized from a research lab, took apart, fragmented, and arranged anew? The piece *telefunken*, for example, is made up of monitors that quite obviously display some sort of impulse. Fine lines of light draw themselves across an otherwise black screen. Next to them, austere panels hang on the walls, reminiscent of Minimalist paintings from the '60s and '70s—black stripes of varying widths cross a transparent white surface. Looking more closely, viewers recognize that the stripes are actually lengths of magnetic tape. Are they blank or recorded? If so, with what: music, photos, text? Apparently it is some type of information, but the specifics remain unclear. A soft humming fills the space, and farther back a number of crystal-like objects await discovery.

Everything is white, gray, or black. The staging is flawless, the surrounding aesthetic a perfect arrangement of ideal surfaces. An lulling beauty emanates from Nicolai's art. Cables, monitors, and speakers, openly displayed, dominate large swaths of the gallery. These elements clearly demonstrate the artist's interest in visual and acoustic phenomena and their realization through the

***reflex* and *perfect square*, 2005. Mixed media, view of the installation "anti reflex."**

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Top: *reflex, perfect square,* and *telefunken,* 2005. Mixed media, view of the installation "anti reflex." Bottom: *anti,* 2005. Mixed media, view of the installation "anti reflex."

use of electronic equipment.

At the back of the long room stands a large *White Cube* that viewers can enter—a white crystal more than 2.5 meters tall. The tiny microphones installed on its milky-opaque walls give the illusion that the cube is connected to an EEG measuring brain-wave activity. Actually, the microphones do not measure any wavelengths or frequencies; instead they emit them. Inside *White Cube*, viewers are enveloped by white noise—it is like walking into a fine acoustic skin that surrounds you and transports you to a world of frequencies and pulses, interpreted and enhanced by your eyes and ears. Concepts like space and time fade.

This is the *reflex* installation, somewhat reminiscent of high-rise architecture, a recently landed spaceship, or even a jail cell from a science fiction movie, feeling simultaneously familiar and alien. With its smooth, perfect beauty, it calls forth design renderings. The actual experience of the size and physicality of the object, on the other hand, seems strangely surreal.

Moving through the passageway connecting the two parts of the exhibition is like falling into the heart of darkness. As in *reflex*, in *anti* the visitor is surrounded by acoustic manifestations. Hissing, crackling, and clicking lure unsuspecting visitors into the darkness. Navigating through the room (which can also mean bumping into other visitors), the viewer finds futuristic-appearing apparatus and steel tubes not unlike torpedoes or rocket engines. The floor suddenly softens and yields. A screen shows a projection of snow flurries that form into patterns and change every few seconds. A gigantic black crystal emerges from the darkness and answers visitors' curious touches with a humming and crackling.

anti is the counterpart to *reflex*. Albrecht Dürer's famous copperplate engraving *Melancolia I* (1514) shows an angelic being in the foreground. Lost in thought, the winged figure sits on a slab of stone; her head lies heavily, supported by her left hand, while her right holds a caliper and touches a closed book. The figure is surrounded by instruments of mathematics, geometry, and trigonometry as well as hand tools, including a hammer, plane, file, ruler, and nails. In her immediate vicinity are also a sleeping dog, an orb, a tiny angel sitting atop a millstone, an hourglass to represent the passing of time, and a large, apparently solid crystal. Dürer's engraving has been the source of many headaches for artists and art historians over the ages. It remains unclear what all the imagery means. Certain elements point to alchemy, the sleeping dog may possibly represent the dream world, and the corona/comet in the heavens could be a metaphysical apparition. What the crystal represents, of what material it is made, if it was manufactured by handiwork, alchemy, or magic or if it is a natural phenomenon, all remain unanswerable questions.

Nicolai, though, has brought Dürer's mysterious form to life in his black crystal *anti*. Nicolai proportionally enlarged his version, which unlike its analogue

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what is being measured and displayed, whether the visible and audible apparitions result from precise instrumentation or pour forth from the visionary-creative will of the artist—perhaps they are a combination of the two. Listening to the microscopic tones of Nicolai's constantly and slowly rotating recordings, observing the Minimalist structures of his installations, paintings, and sculptures, the world becomes a place of fantastic experiments and brilliant solutions.

Nicolai attempts to involve you, the viewer, in his art, integrating you into it and thus allowing you to take part in an open creative process. The room installation *visuelles Feld* (*visual array*) contains a small camera mounted opposite a wall projection. A monitor reproduces acoustic and visual signals from the camera. Visitors cannot enter the room without entering the camera's field of operation; mere presence automatically changes the picture and tone, thus making it impossible to see an interference-free image. When artists so directly integrate the viewer into their work, they may create unanticipated reactions that they can no longer control. Inasmuch as Nicolai works with the continuity

reflex cannot be entered, to a height of 2.55 meters. Its magnetic field is disrupted by that of the human body, thus it interacts with the gallery's visitors. When you walk by or touch the work, it answers with humming and crackling. The mechanism, however, remains literally in the dark. Since the crystal is black and located in an almost completely darkened room, it emerges, monolithic in size, like an apparition—its scale and proportions are difficult to comprehend.

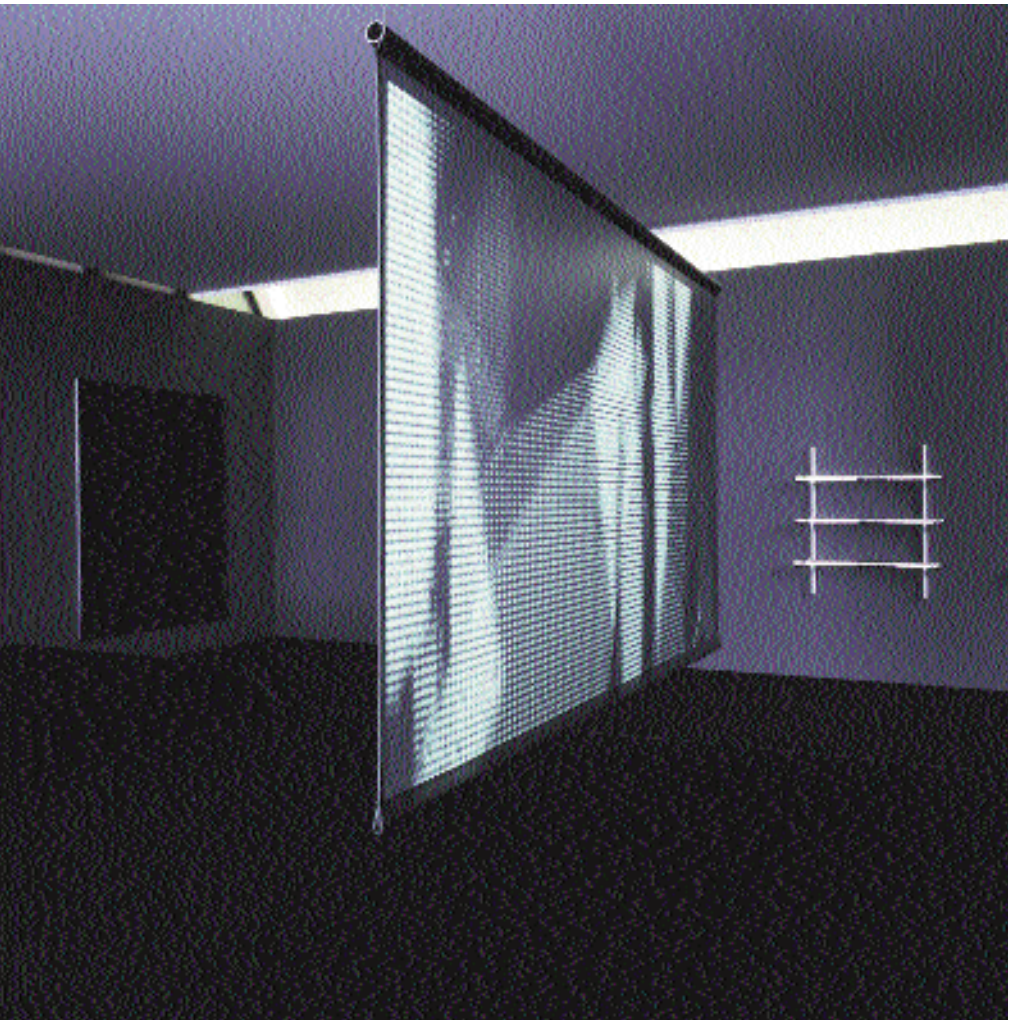
Both rooms, reminiscent of research laboratories, may also conjure long-ago physics courses. But while the works are clearly rooted in representations of scientific questions and rational thinking, they are at the same time enigmatic and poetic. It remains difficult to fathom



Above: *Modell zur visualisierung*, 2001. Electron diffraction tube, magnetic field, coil, CD player and CD, amplifier, loudspeakers, and light table, dimensions variable. Right: *Kerne*, 1998. Steel, rubber, glass, and water, dimensions variable.

TOP: NORBERT MIGULETZ, © VG BILD-KUNST, BONN, 2005, COURTESY SCHIRN KUNSTHALLE FRANKFURT AND GALERIE EIGEN+ART, LEIPZIG/BERLIN / BOTTOM: UWE WALTER, © VG BILD-KUNST, BONN, 2005, COURTESY GALERIE EIGEN+ART, LEIPZIG/BERLIN





Top: *Void*, 2002. Sound, chrome-plated glass, aluminum, silicon, and rubber, dimensions variable. Bottom: *Spray*, 2004. Video projector, DVD player and DVD, and sound system, dimensions variable.

of shape and sound and the correspondence between vision and hearing, he combines the cyclical elements of nature with the cycles and oscillations created within the viewer.

In part, the technical-equipment aesthetic that Nicolai uses speaks for itself and creates its own unique world—a world of associations and levels of meaning. This world is one of precision, where the impossible is made possible. An array of optical and acoustic signs announces that we have landed in a mysterious technical place.

Nicolai's works transpose our visual and aural perceptions by making tones and rhythms visible and visual phenomena audible. The question of what is being seen and heard is not just a viewer's first amazed impression; instead it represents a repeating and fundamental theme in his work: *What* am I seeing? *What* am I hearing? Nicolai analyzes these familiar processes and does so with scientific accuracy. For example, sound waves are projected onto a screen so that the eye can visually comprehend them. "I like to work under very precise conditions and in that sense scientific research and artistic processes are more or less the same." His interest in science, however, transcends the precision of his work. Dürer's *Melancolia I* also shows a square on the wall above the figure, subdivided into a four-by-four grid of smaller squares, each with its own number. The sums of the horizontals, verticals, and diagonals of the large square are all equal. These images of mathematical oddities open the doors of congress between science and art: a meditation on geometric proportions becomes a way to experience the structure of the world.

Scientific research and artistic speculation enjoyed a dialogue during Dürer's time. In Nicolai's work, they do so again. The 16th and 17th centuries saw a range of scientific discoveries and observations that changed our view of the world. Just before the modern age, the stable framework of unquestioning belief in Christian dogma lost ground to

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***98% Wasser*, 2002. Aquarium, water, and jellyfish, dimensions variable.**

an unbridled level of curiosity about the surrounding world and its workings. The laws of optics, motion, gravity, the planets' orbits, and the measurement of time were discovered; groundbreaking research and an unparalleled thirst for knowledge produced completely novel paradigms. The Renaissance remains fascinating to this day as an interface between belief and knowledge, between the Middle Ages and the Modern Era, between the dark insanity of the Inquisition and the bright clarity of reason. Nicolai is interested in the concept of the Renaissance and is searching for insight himself: "I am not religious. I believe in mathematical models, geometric systems, and rigorous logic. I believe there is a master plan underlying all of nature. However, it does not take the form of one single plan but instead is a complex pattern of differing, interwoven plans."

Some of his works are based directly on Renaissance research. Kepler's 1611 text *On the six-cornered snowflake* was the first scientific treatise published on snowflake crystal morphology. Kepler recognized that snowflakes always exhibit six-fold symmetry and that this complex crystalline structure is one of the most fascinating and beautiful occurrences nature has to offer. He tried to understand and explain this morphology through logical reasoning. Nicolai is also fascinated by these fine white stars, with their infinite variety of new shapes and forms. The installation *snow noise* gives viewers the opportunity to initiate the creation of ice crystals in a laboratory-like setting. The freezers can be used to cool a specially prepared glass cylinder to a temperature of minus 25 degrees Celsius. Just a few minutes after setting the container into the freezer, simple ice crystals begin to form. Over time, more complex structures crystallize, forming shapes that never repeat themselves. A scientific table holds drawings that depict the large number of various types of ice crystals; with them, the viewer can identify individual crystalline structures. Through the sublime use of light and sound, *snow noise* focuses our full attention onto microstructures.

The scientist and the artist are connected by their fascination with the visual, by their challenging of established paradigms, and by their curiosity and their courage to think differently. Nicolai says, "Those who only follow logical rules are acting like machines. The person who first bursts the mold and does something unexpected is the one who breaks new ground. Several of the more famous scientific inventions are products of coincidence; often it's the unexpected moments that trigger new discoveries." Kepler's treatises and speculations inspired Nicolai to combine scientific laboratory methodology with his intuitive search for new expressive languages, this time reproducing the crystalline structures of snowflakes and the crystal in Dürer's engraving.

Precision and skepticism echo in Nicolai's works. Being willing to admit mistakes is a basic necessity for creativity and change. The objects created by this process represent an integration of the imaginary and the real. They trace mysterious phenomena and try to lead our perception in new directions. To this end, Nicolai works with reduction and abstraction. His paintings are made of transparent materials. Acoustic wavelengths, frequencies, rhythms, and cycles provide a starting point for many of his works; mathematical principles, shapes like spirals, and algorithms make up the visual foundation; light and its absence are its basic elements.

The idea of consciousness as a network, subject to no hierarchy, pervades Nicolai's thinking. It establishes the basis for his observations and the realization of his work, emerging from the amorphous threshold where consciousness and materiality intertwine. The viewer perceives changes and reacts to them, moves into a magnetic field and influences it, enters a room and changes it, just by being present. We are both Nicolai's audience and subject.

Many of these considerations, however, are in danger of being eclipsed by the Minimalist beauty of the exhibition. The technical coolness and perfect electronic design aesthetic seem almost too smooth and too perfect to capture the mysterious, almost miraculous conjunction of science and art.

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