

ENERGY

THE POWER OF ART



NASSAU COUNTY MUSEUM OF ART

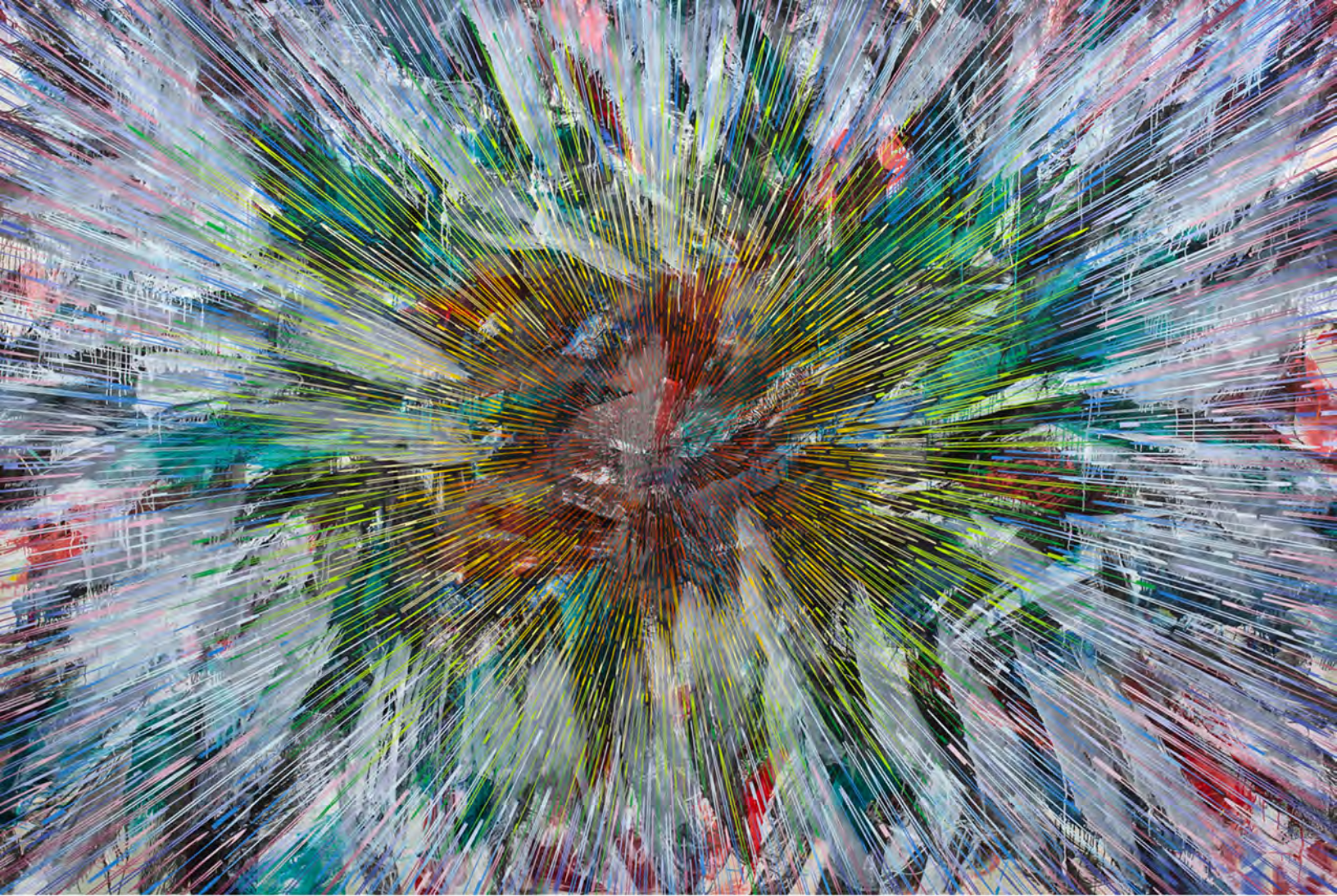
JULY 20 TO NOVEMBER 3, 2019

ACKNOWLEDGEMENTS

Talk about a moonshot! For a fine art museum our size to take on a substantive dialogue with physics and mathematics was from the start an audacious idea. We knew it would take the magnanimous support of the museum's ever-broadening community, our "brain trust." We turned to Island colleagues at two great science institutions as well as museums and universities. It started with Brookhaven National Laboratory and the Tesla Museum, along with significant loans from the Heckscher Museum (Man Ray's amazing Electricite portfolio) and the Pollock-Krasner Foundation (thanks yet again Helen Harrison) and input from faculty at Adelphi University as well as the renewables experts at PSE&G and Zeropoint. "The energy project" has been a team effort among artists and scientists. Julie Mehretu agreed to lend a rare early painting, and Frank Stella loaned us his latest sculpture (he and I were talking about Einstein at Princeton). Miya Ando transformed gallery three into a walk-in experience of the aurora borealis, generously donated to the museum (special thanks to Dan Caputo for his hard work). Doug Argue, famous for the epic painting he made for the new World Trade Center, arrived at the museum fresh from dancing on the beach in Montauk, scoped out one of the giant white walls in gallery 2 (thanks to Frank Castagna and Arthur Levine) and the next day went to work creating a massive painting just in time for the show. Arthur Carter, a world-class mathematician, offered one sculpture for inside and one for the garden. Barbara Prey, the only woman commissioned by NASA for multiple projects, opened her archives and loaned a masterwork joined Rachelle Krieger, Christine Matthai and Scott McIntire (who designed this catalogue, too) as the local talent on the wall. Mimi Rosenquist, widow of James, generously offered us his epic painting as well as a priceless, intimate sculpture that captures the midnight idea which inspired his amazing paintings on the theme of Einsteinian space-time. Kazuhito Yoshi relayed Hiroshi Sugimoto's intentions on installations, and we had blue-chip galleries on our side, including Pace, Peter Blum, Salon 94, Marianne Boesky, ULAE and The Drawing Room. Council member Dee Dee Brix alerted me to a masterwork by Richard Pousette-Dart at the neighboring waterside palace of Melvyn Weiss. Our trustee-connoisseurs stepped up yet again to loan treasures (William Achenbaum, who added a timely piece of advice on presentation and Dr. Harvey Manes, who sponsored this catalogue) together with Bruce and Michele Clark, who have supported our new curatorial vision before. Meanwhile on the science side, the nano-technology and "beamline" labs at Brookhaven were opened to us by Scott Bronson, an extraordinary educator who arrived at the museum with a working cloud chamber, and Juergen Thieme, who graced our opening and offered an exceptional public program on his extraordinary work. Nikola Tesla's lab was right on Route 25A, where Debbi Price found us the electrifying drawings, photographs and original instruments that transformed our library space.

As always, it depended as well on the professional quality of the installation by the immensely talented Fernanda Bennett, her hardworking associate Jennifer Haller and Rey Castillo. The education department under Laura Lynch's leadership was such a helpful influence on the curatorial decisions, including Reem Hussein, Katie Aragon, Rebecca Hirschwerk, Noemi Fletcher, and the amazingly knowledgeable Jean Henning (who edited this text along with Natalia P. Good). With Monica Reischmann, Tara Keblish, Claire Kabot, Diane Roedel, Deb Breen, John Yoniak and interns Aram Ebrahimian, Yihan Ding, Mei Chung Lu, Sherry Yang and Caroline Madden, and our superb docents and volunteers, the whole museum community rallied behind the idea of art and science in dialogue. Watt by watt, the power of the ideas rose steadily as the exhibition brought together the "two cultures" of science and art.

Charles A. Riley II, PhD



ENERGY

THE POWER OF ART

JULY 20 THROUGH
NOVEMBER 3, 2019



NASSAU COUNTY MUSEUM OF ART

ONE MUSEUM DRIVE, ROSLYN HARBOR, NEW YORK 11576

THE LUMINOUS AIR

Joining Art and Science

“Just as the stone thrown into the water becomes the center and cause of various circles, and the sound made in the air spreads out in circles, so every body placed within the luminous air spreads itself out in circles and an infinite number of images, of itself and appears all in all and all in each part.”

Leonardo da Vinci, Notebooks

Light, space and time are the essential challenges confronting artists and scientists. Energy is the nexus. The vital source of life itself, energy is all around us and yet it packs daunting secrets. Electricity flows not just through our devices, our atmosphere, outer space--but through ourselves (“the body electric” as Walt Whitman called it). Art and science achieve the seemingly impossible, offering a visual translation of energy fields, waves and currents. Their existence was predicted by history’s greatest theoretical minds from Plato, Aristotle, Lucretius and Ptolemy to Isaac Newton, Albert Einstein and Nikola Tesla, their mathematical models proven (and disproven) by advanced instruments. In this exhibition, artists and physicists pull us into close harmony with the unseen universe as we could never otherwise experience it.

History is replete with the stories of visionaries who have somehow made the invisible visible. Drawing as he thought and observed, Leonardo turned his preternaturally accurate hand to the depiction of wave patterns and deluges. One of the most famous paintings in the world is by a supposedly mad Dutchman with an intuitive sense that something immense (what we now know to be electromagnetic radiation) was swirling about the stars in the night sky. The high-voltage abstractions of Jackson Pollock, Mark Tobey, Richard Pousette-Dart, Jimmy Ernst, Norman Carton and Norman Bluhm took the risk of grasping power in paint. “My art is energy made visible,” Pollock declared. Some artists work directly with energy. Man Ray bombarded objects with charged particles, blasting their silhouettes directly onto photographic paper for his

“rayographs.” Keith Sonnier pays homage to the scientist Nicola Tesla with a sculpture that zaps a rising blue spark, sizzling with the sound of live voltage, through a continuous circuit from the floor to eye level and back again. Miya Ando catches sunlight in slabs of engraved glass and veils of celestial splendor. For their part, many scientific geniuses were not just mathematical, but visual thinkers with an aesthetic bent. Einstein as a child pictured himself racing a beam of light and explained his theory of relativity using the graphic image of two moving trains. He was at home in the mirroring chambers of a Bach fugue. The drawings of Tesla, whose earliest invention was conceived as a diagram inscribed with a stick in the sand of a Budapest park, are primary documents in the history of science. Like the ravishingly beautiful nano-technology images made at the Brookhaven National Laboratory, the abstractions of science take on an undeniable aesthetic significance. Power and the power of art join forces.

Jackson Pollock
CR 1096 (P32)
[After Number 17, 1951],
1964 screenprint
image: 16 9/16 x 19 1/16 inches
sheet: 23 x 29 inches
Edition of fifty, printed by
Bernard Steffen, reproduced.
Courtesy of the Pollock-Krasner
House and Study Center,
East Hampton, New York





Jackson Pollock CR 1082 (P19), 1967, engraving and drypoint; paper: white, smooth, wove
 image: 15 3/4 x 23 3/4 inches sheet: 19 13/16 x 27 1/4 inches Edition of fifty, printed by Emilian Sorini, reproduced.
 Courtesy of the Pollock-Krasner House and Study Center, East Hampton, New York



Jackson Pollock CR 1078 (P16), 1967 engraving and drypoint;
 paper: ivory, smooth, wove
 image: 11 13/16 x 8 15/16 inches
 sheet: 10 x 13 5/8 inches
 Edition of fifty, printed by
 Emilian Sorini, reproduced.
 Courtesy of the Pollock-Krasner
 House and Study Center,
 East Hampton, New York

An Epic Burst of Energy

Many artists are the embodiment of this union of art and science. Trained as an engineer, Alexander Calder was also obsessed with both cosmology and astronomy: "The underlying sense of form in my work has been the system of the Universe, or part thereof." At home with torque and vectors, his perfectly calibrated *Untitled Mobile Nine* traces the exquisite geometry of the heavens., y. One of the most famous of the many Calder anecdotes is this often-quoted epiphany which he experienced in June 1922 when he shipped as an engine-room mechanic on a voyage from San Francisco to New York.: "It was early one morning on a calm sea, off Guatemala, when over my couch—a coil of rope—I saw the beginning of a fiery red sunrise on one side and the moon looking like a silver coin on the other. Of the whole trip this impressed most of all; it left me with a lasting sensation of the solar system." Calder's mobiles trace a delicate geometry in air that holds its own Einsteinian logic. Calder's indirect source was his dear friend Joan Miro's epic series of gouache and ink paintings on paper, *The Constellations*. In addition to the elegant mathematics behind the sculpture of Arthur Carter and Kenneth Snelson, this exhibition is rich in kinetic sculpture, with works by Calder's charming progeny, the Scottish sculptor George Rickey, the gently undulating veils of Miya Ando's *Aurorae*, and the dynamic (even if a bit terrifying, for the vaguely menacing sound of rising voltage) homage to Tesla by that master of neon, Keith Sonnier as well as neon artist Clayton Orehek's interactive rendering of Tesla's signature, powered by a hand-cranked generator.

Arthur Carter
Continuous Elliptical Loops,
2005, stainless steel
42.5 x 37 x 26 inches
Courtesy of Arthur Carter,
New York



George Rickey
*One Up One Down
Oblique Closed
Variation II*,
edition 1/3, 1975
stainless steel
29 x 24 x 24 inches
Courtesy of The Clark
Family Collection,
New York



Alexander Calder
Untitled Mobile Nine, n.d.
 painted sheet metal, rod, and wire
 72 13/16 inches long
 Courtesy of a Friend
 of the Museum

Calder in turn was a direct influence on Frank Stella's digital manipulation of forms, many of them printed in 3D. From a stratospheric altitude, the rising international art star Julie Mehretu maps the layers of many types of power on an absorbing palimpsest of global complexity, while the Abstract Expressionist master Richard Pousette-Dart was inspired by a sub-atomic sense of the infinite: "the grain & points of form structure & the prismatic/ magic of light/ the molecular structure/ & energy of life itself." When Doug Argue visited our gallery to measure the huge white walls, he returned to the studio to finish, in a Pollock-inspired explosion of paint, his magnificent *Dancing on the Beach* just in time for this show. It rhymes uncannily with the radial "big bang" from Brookhaven's collider. Ando's studio notes for *Aurorae* include such primary source materials as nineteenth-century French etchings of the aurora borealis, polar maps, a spectrometric analysis of the wavelengths and even a page of integrated equations that works out the calculus of the northern lights.

Energy is one bond between art and science, while an innate passion for experimentation in the lab or studio is another. Man Ray brings them together. When the Metropolitan Museum curator of photography Jeff Rosenheim archly called him a “playful alchemist” (with specific reference to the *Electricité* portfolio that we are so fortunate to have in the show, thanks to our good neighbors at the Heckscher Museum), he invoked the crucial way in which both artists and scientists test boundaries. Man Ray (born Emmanuel Radnitzky on August 27, 1890) left Williamsburg, Brooklyn for Paris in 1921, where he became a central figure in the vortex of avant-garde artists, writers, composers, and filmmakers the Museum celebrated in our Jazz Age show. The “rayographs” are brilliantly innovative “camera-less” works, in this case featuring light bulbs, a toaster, a fan and an iron with their power cords and heating coils prominently featured. They are the symbols of the exciting new electrification of Parisian homes.

Man Ray
Le Monde (The World) from the
 portfolio *Électricité*, 1931
 photogravure from rayograph
 10 1/8 x 8 inches
 Courtesy of The Heckscher
 Museum, Huntington, New York
 Museum Purchase with funds
 provided by Andrea B. and
 Peter D. Klein (2007.2.5)



Man Ray
Le Souffle (The Fan) from the
 portfolio *Électricité*, 1931
 photogravure from rayograph
 10 1/8 x 8 inches
 Courtesy of The Heckscher
 Museum, Huntington, New York
 Museum Purchase with funds
 provided by Andrea B. and
 Peter D. Klein (2007.2.6)

Man Ray
Lingerie (Lingerie) from the
 portfolio *Électricité*, 1931
 photogravure from rayograph
 10 1/8 x 8 inches
 Courtesy of The Heckscher
 Museum, Huntington, New York
 Museum Purchase with funds
 provided by Andrea B. and
 Peter D. Klein (2007.2.8)



Man Ray
La Maison (The House) from the
 portfolio *Électricité*, 1931
 photogravure from rayograph
 10 1/8 x 8 inches
 Courtesy of The Heckscher
 Museum, Huntington, New York
 Museum Purchase with funds
 provided by Andrea B. and
 Peter D. Klein (2007.2.3)

The impetus for this commission from a private utility, La Compagnie Parisienne de Distribution d'Électricité (500 copies were made for their officers and top clients), was the need to convince people that electric appliances were safe and convenient. Writing for *The New Yorker* in 1933, James Thurber gently mocked his aunt Sarah in Columbus who was terrified that electricity was “dripping” from the fixtures all over her house. Like James Rosenquist and Jasper Johns with their light bulbs or Scott McIntire with the pole-mount transformer, Man Ray found beauty in the ordinary object, what the philosopher and art critic Arthur Danto referred to as “transfigurations of the commonplace.” Man Ray being Man Ray, he was not shy about playing with references (Lingerie features the iron) or combining still life with classic nudes featuring Lee Miller, who takes on the role of muse of the unseen power suddenly coursing through modern lives. Man Ray’s studio assistant in Paris was Berenice Abbott, whose refined eye for still life makes a philosophical thesis from a lone candle by a mirror, leading the mind into a consideration of parallax, or draws a burst of sheer beauty from a fondly recalled science experiment in grade school, the sudden marshaling of order when a magnet is held below scattered iron filings.



Man Ray
Salle de Bain (Bath Room)
 from the portfolio *Électricité*, 1931
 photogravure from rayograph
 10 1/8 x 8 inches
 Courtesy of The Heckscher
 Museum, Huntington, New York
 Museum Purchase with funds
 provided by Andrea B. and
 Peter D. Klein (2007.2.9)

Man Ray
Untitled from the portfolio
Électricité, 1931
 photogravure from rayograph
 10 1/8 x 8 inches
 Courtesy of The Heckscher
 Museum, Huntington, New York
 Museum Purchase with funds
 provided by Andrea B. and
 Peter D. Klein (2007.2.10)



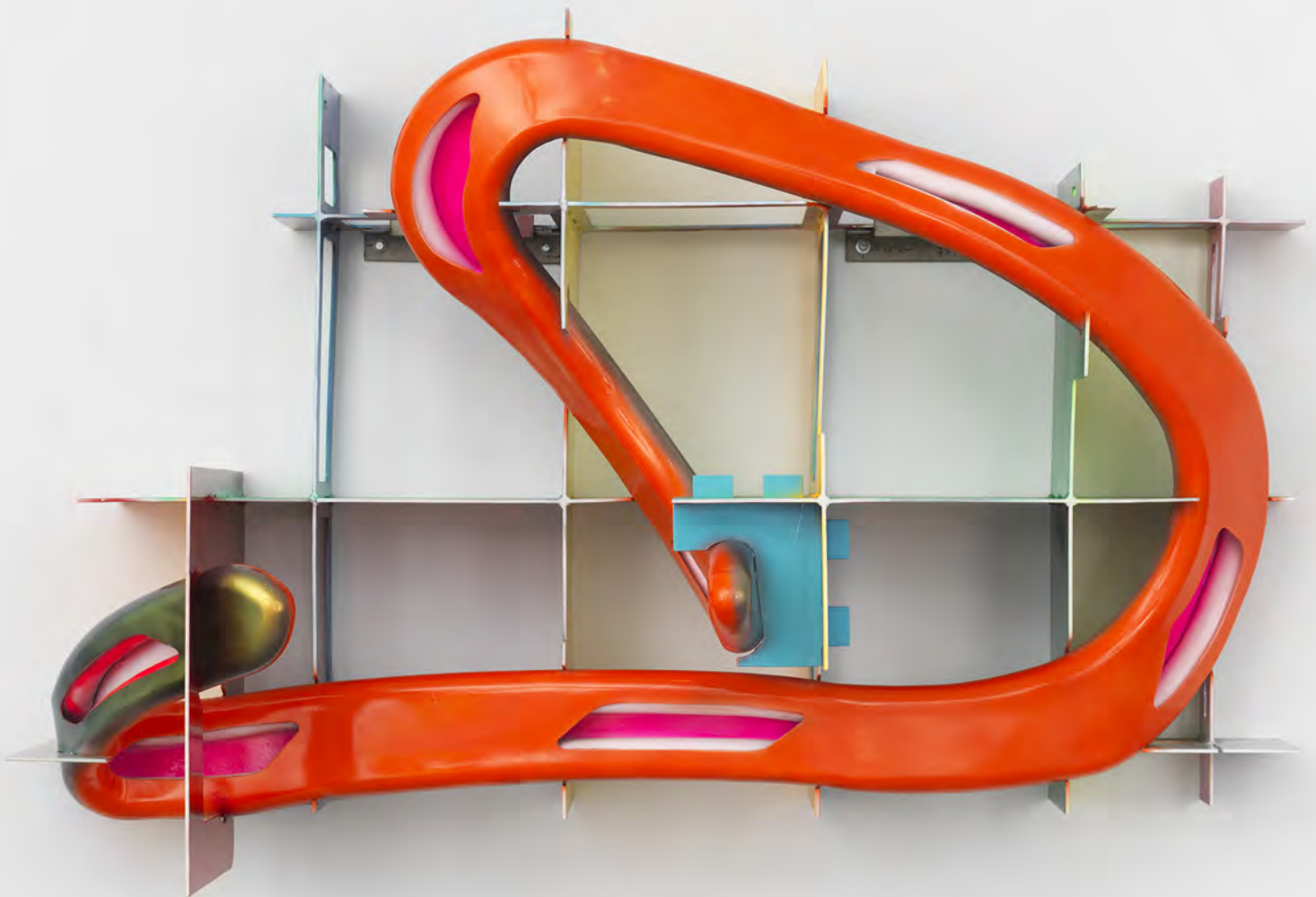
Jasper Johns
Light Bulb, 1976
 lithograph
 17 x 14 inches
 (image)
 Courtesy of
 Universal Limited
 Art Editions
 (ULAE), Bay Shore,
 New York



Cloud Atlas

Clouds are another everyday phenomenon, easily taken for granted, with a towering place in art history. John Ruskin bridled at how Londoners remained oblivious to their majesty, streaking the sky over the dome of St. Paul's and Hampstead Heath. The second volume of his monumental series of books *Modern Painters* concludes with an eighty-page paean to the "Truth of Clouds" which includes this lyric effusion: "...that appearance of exhaustless and fantastic energy which gives every cloud a marked character of its own...which give to the scenery of the sky a force and variety no less delightful than that of the changes of mountain outline it is added to this a spirit-like feeling, a passion and life, totally different from any effects of inanimate form that the earth can show." It was written in the same era as Wordsworth's famous "I Wandered Lonely as a Cloud" and Shelley's sonnet, "We are as clouds that veil the midnight moon." Both art and science have a special place for clouds. Among the extraordinary cloud studies, after Leonardo's deluges, are the heroic Dutch and Flemish landscapes of van Ruisdael, Hobbema and Rubens as well as Monet, Constable (a wall of cloud studies is a highlight of any trip to the Yale Center for British Art) and, Ruskin's all-time favorite, Turner. The virtuosi of clouds here are Frank Stella and Miya Ando. In the 1980s Stella, rarely encountered without his cigar, had his studio assistants build an eight-foot-square box lit with lights and cameras on all sides (like the cloud chamber in our exhibition). As he puffed smoke into it, they took the images that the CAD program turned into curvilinear plastic planes, which were then printed in 3D, such as the glorious swoop of red in *Leeuwarden I*, its title returning to the slot car racing circuit that so aptly complements the need for speed (compare Rosenquist's pedal-to-the-metal "learning curve"). Now 83, Stella has danced with science as gracefully as any artist of his or later generations, turning CAD into an instrument that has expanded the spatial complexity of his sculpture. His formulation, "Materiality and gesture make space," is our guide to the sonorous volumes of this extraordinary new work. Among the influences on his recessionary painterly and sculptural space are Jackson Pollock, about whom he wrote so insightfully in *Working Space*, and Calder, whose *Circus* unleashed the exuberant twisting of tubular materials. In an interview with

Laura Owens on the occasion of his spectacular Whitney retrospective four years ago, Stella addressed the struggle of the viewer trying to “identify” that three-dimensional illusion: “The object of the painting—it could be a Renaissance painting, a mural, what have you. It’s such a struggle to see what’s actually there. The part about space seems not very real actually, in terms of the way things are experienced. I mean, it’s nice to talk about, and I can worry about it, but what’s up front is still either the making of an object or working on a surface. Put simply, it’s how things go together. That’s the only part that counts for me.”



Frank Stella *Leeuwarden I*, 2017. painted metal 54 x 83 ¼ x 36 inches
Courtesy of the artist and Marianne Boesky Gallery, New York and Aspen

Enter the Aurora

Like Stella, Miya Ando combines a scientist's curiosity with a painterly passion for color. Since visiting her studio I have had on my desk an exquisite little block of glass within which the clouds observed on a particular day in January were etched by a laser process that micro-fractures its interior. Last year she "wrapped" the iconic Versailles Building in Miami with cloud imagery and installed large glass panels inscribed with clouds in the courtyard of the Noguchi Museum. Even larger, freestanding ones, each titled Kumo (Japanese for "cloud") with an individuating number, are among the highlights of our show. Viewers wander among them en route to a glorious arched window. Just over a hill outside, past a famous beech tree, is a masterpiece by Richard Serra that is also composed of three monumental rectangular forms through which the viewer strolls, across a rolling meadow under the open sky. Dazzling us during the exhibition True Colors with rainbows conjured on polished surfaces (and with her scientific knowledge, including published papers in metallurgy journals), Ando mentioned a major new series based on the aurora borealis. The plan for this extraordinary installation, the dramatic climax of our exhibition, was set in motion. The aurora is a sublime display of nature's energy that lures bewitched travelers to remote Arctic locations where they chase the spectral emissions, the result of collisions between the gaseous particles of earth's atmosphere and the electrons accelerated in their passage from the magnetosphere of the sun. The electrons transfer their energy to the atmosphere, exciting molecules to higher states, after which they release that energy in the form of light. The emerald green is produced by oxygen about 60 miles high, while the red is at 200 miles, while nitrogen produces blue or purple. In a feat of optical poetry that defies probability (bringing the ephemeral aurora indoors?), her transformation of the old dining room of the Frick mansion with concentric spirals of fabric, tessellated with stars at its top and subtly modulated bands of iridescence below, creates a labyrinth of moving fabric. As the project progressed, the artist and I batted back and forth our favorite selections from the long, lyric sequence of Wallace Stevens, "*The Auroras of Autumn*," which includes this stunning panorama:

*...the north is always enlarging the change,
With its frigid brilliances, its blue-red sweeps
And gusts of great enkindlings, its polar green,
The color of ice and fire and solitude.
Farewell to an idea...*



Miya Ando
Aurorae, 2019
 printed fabric, aluminum
 138 x 120 x 120 inches
 Courtesy of the artist

Miya Ando
Kumo (Cloud) 60.30.1, 2017 glass
 60 x 30 inches; base: 12 x 24 inches
 Courtesy of the artist

Miya Ando
Kumo (Cloud) 79.63, 2017 glass
 79 x 63 inches; base: 17.5 x 63.5 inches
 Courtesy of the artist

Miya Ando
Kumo (Cloud) 60.30.5, 2017 glass
 60 x 30 inches; base: 12 x 24 inches
 Courtesy of the artist



From the Clouds to the Stars

Nothing less than the universe itself, in all its entropic sublimity, is our “subject.” Whether a walk-in sculpture like Ando’s, or her large diptych based on the stars, or on the intimate scale (magnum in parvo) of a Joseph Cornell fantasy, Vija Celmins’ starry night or the delicate flecks of gold and white traipsing across the watercolors of Barbara Prey, the cosmos is the ultimate topic. It is the direct inspiration for Calder’s perfectly engineered mobiles and the ultimate challenge for Brookhaven’s scientists, who release a man-made Big Bang inside the relativistic heavy ion collider. The fastidious and rhythmic approach to painting the impossible taken by Celmins and Prey (waves, the stars, light itself) applies as readily to realism as it does to abstraction, the two poles in the aesthetics of the show. Both are mimetic in their way. Just compare the paintings of Pollock, Tobey, Ernst, Blum and Rachelle Krieger (in her Rocks and Rays series) with the tracks of electrons and gluons revealed by scientists in cloud chambers, bubble chambers and colliders. The similarity of abstract art to the sub-atomic vocabulary of the universe is fascinating. Chalk it up to a deep-space version of intuition bringing Jungian levels of perception to the canvas and paper with ancient philosophical underpinnings. In the late dialogue the Timaeus, Plato at age 70 pictured the universe as the visual reflection of “forms” or “ideas” moving mathematically in time, the inventions of a godlike intellect. The basis not just of astronomy (anticipating Ptolemy by centuries) and physics, but medicine, biology, music, mathematics and metaphysics (including ethics),

it uses both mathematics and language to describe a comprehensive order, uniting gods, planets, men, birds, animals, fish, seas and mountains. Plato’s “essences” are schematically represented as geometric solids based on triangles (such as the multicolored figure in *McIntire’s Life and Death and the Space in Between* or the Pythagorean solids in the analytic drawings of Durer, Leonardo, Alberti and so many other scientifically minded artists).



Miya Ando
Small Work on Steel
(Pink and Green), n.d.
steel
12 x 12 x 1 inches
Courtesy of the artist

Missing Images OF CELMINS AND CORNELL

Vija Celmins

Inside Print from The Stars, 2005

etching with chine on handmade paper

13 x 16 inches

Courtesy of the artist and The Drawing Room, East Hampton, NY

Joseph Cornell

Untitled Box, 1959

mixed media and glass

9 ½ x 15 x 4 inches

Courtesy of a Private Collection



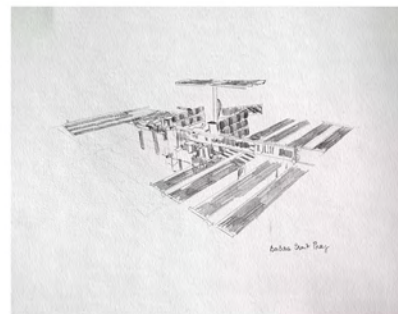
Barbara Ernst Prey
International Space Station II, 2003, watercolor, dry brush, and mixed media on paper, 28 x 40 inches, Courtesy of the artist



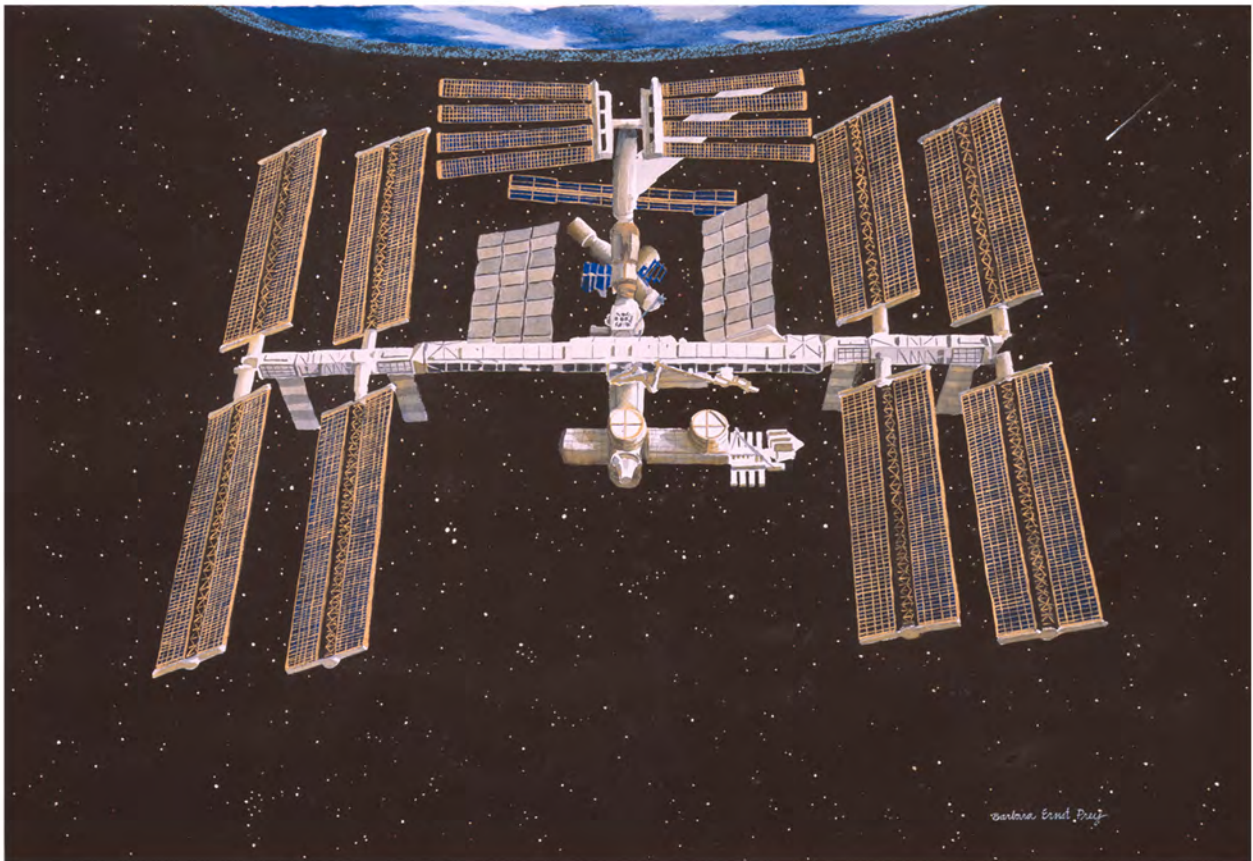
Barbara Ernst Prey
Columbia Tribute, study II, 2004
 pencil (graphite) on paper
 12 ½ x 12 inches
 Courtesy of the artist



Barbara Ernst Prey
X-43, 2004
 pencil (graphite) on paper
 15 x 22 inches
 Courtesy of the artist



Barbara Ernst Prey
International Space Station, study #1, 2003
 pencil (graphite) on paper
 15 x 22 inches
 Courtesy of the artist



Barbara Ernst Prey, *International Space Station II*, 2003,
watercolor, dry brush, and mixed media on paper, 28 x 40 inches, Courtesy of the artist



Barbara Ernst Prey

can't figure out the title

Barbara Ernst Prey
Columbia Tribute, 2004
watercolor on paper
29 x 21 inches
Courtesy of the artist

This alertness to the cosmic significance of something as tiny as an atom has its counterpart in the subtle degrees of perception in the show. If one admirable artistic trait emerges among others, it is a keen sensitivity to the infinitesimal as the intimate key to the infinite. Just before the opening, our marvelous education team (Laura Lynch, Katie Aragon, Rebecca Hirschwerk and Reem Hussein) participated in mindfulness training at the Rubin Museum. I cannot help linking this deliberate attention to attention with the exquisite heightening of perception shared by so many of the artists whose works are exhibited here. Consider Celmins' legendary ability to register the slightest nuances from wave to wave and star to star, the feather-light touch of McIntire's clouds of hovering "no-see-ems," the celestial blue light of Cornell's twilights in miniature, the gossamer webs of Tobey, the Zen-toned spectra and cotton-batting clouds of Ando, the flickering white accents of Argue, the lithe radiance of Sugimoto and Coolidge, and Johns's layered greys which could in turn have been lifted from the gradations of Bitzer's *Axis Lux*. All are possessed of a supreme level of visual acuity, what Wordsworth called "a sense sublime of something far more deeply interfused." The labyrinthine meditations of Christine Matthai begin with photographs of the ripples on a beach (East Hampton, the Bahamas and Miami—Le Corbusier also took photos of the wave patterns on sand) and add layers of sand itself, gold, glitter as well as words and the frequencies of the ancient solfeggio scale (396 Hz, 417, 528, 639, 741 and 852). The healing properties of the musical tones have the therapeutic effect of the melismatic chants of Hildegard von Bingen (who additionally wrote books about medicine and language). One of our docents actually chants as she leads her tour into Ando's *Aurorae*. The Jungian universality of this labyrinth surfaces in McIntire's *Life and Death and the Space in Between*, the concentric paths of *Aurorae*, the Tesla coil, the Brookhaven "Big Bang and nano-level images of silicone loops" and the patterns of Berenice Abbott's electromagnetic photograph.

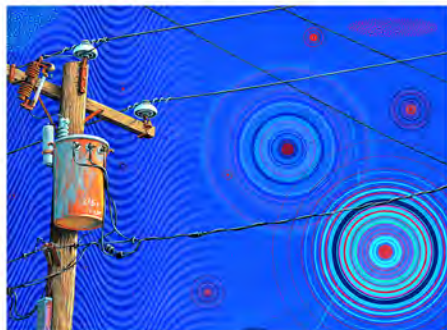
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matthai black

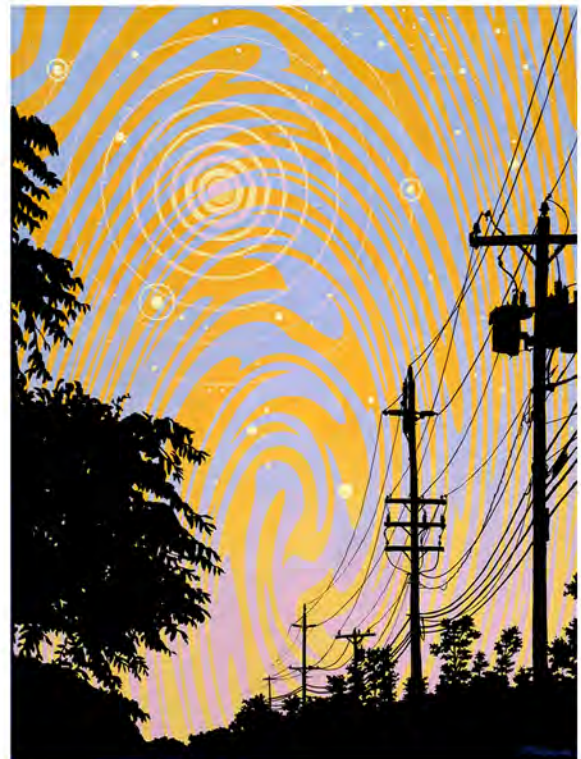
On this level of perspicacity, compelling research reveals the “superchromatic” vision of certain women (and only women) who can discern ultraviolets and infrareds beyond the visible reach of ordinary rods and cones. It is as though our artists have conferred some of that superpower on us via painterly proxies. Scott McIntire, for instance, is a consummate draughtsman who happens also to be an adept gardener and a top-notch birder. One of his most charming moments of natural observation in these works is offered by the three little clusters of tiny insects (in New England they are called “I can create an energy field on the surface of the canvas to remind us that we don’t just see these things, but there are the smells, the sounds the motions that go by,” he declares. This remarkable and audacious mission is fulfilled in paintings that maintain a brilliant, realistic dialogue between the world as we do perceive it and the radiant schemata by which an array of energies are delivered in a sort of Morse code of color and rhythm, including the voice prints of the birds so dynamically portrayed. The Kerouac-worthy invitation to drive fast into *Road Trip #1* is matched by the frenetic intersections of tight-edged patterns in the sky, an effect that bends in a hallucinatory way behind the crisply articulated silhouettes of the ‘trees. The subtle contrast lends weight to the dialogue of terrestrial (the corporeal forms) and extraterrestrial (pulsing fields of gravitons, gluons, bosons, electrons, microwaves).



Scott McIntire
Power Pole #25, 2013, enamel on canvas
 18 x 24 inches, Courtesy of the artist



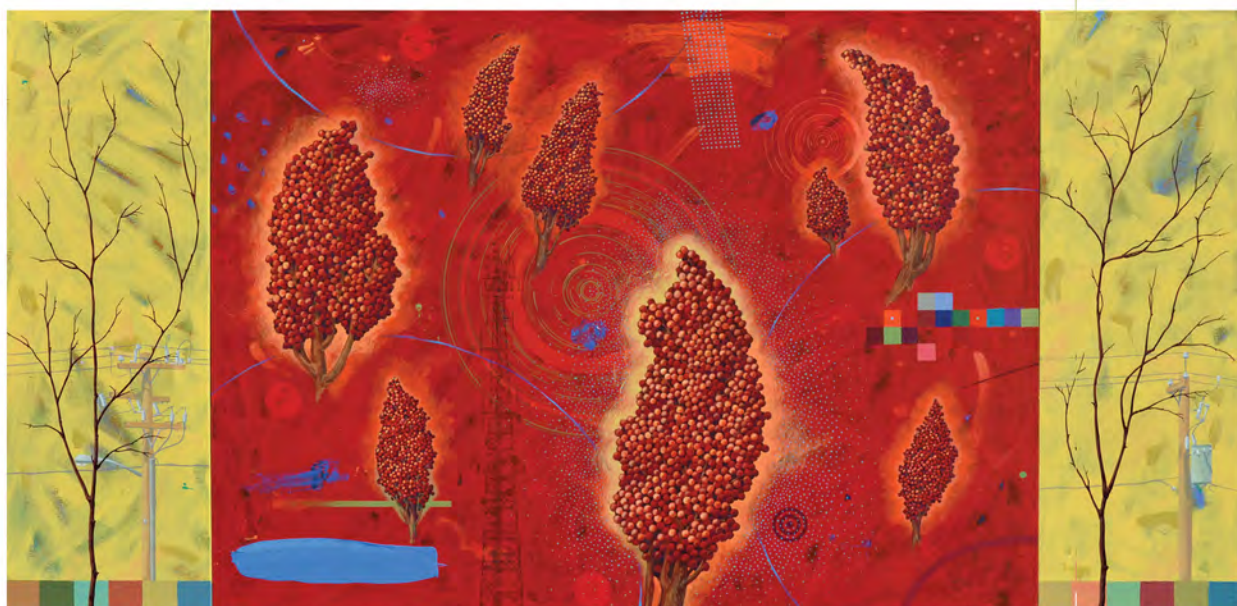
Scott McIntire
Power Pole #37.5+, 2013, enamel on canvas
 18 x 24 inches, Courtesy of the artist



Scott McIntire
Road Trip I, 2013 enamel on canvas
 24 x 18 inches, Courtesy of the artist



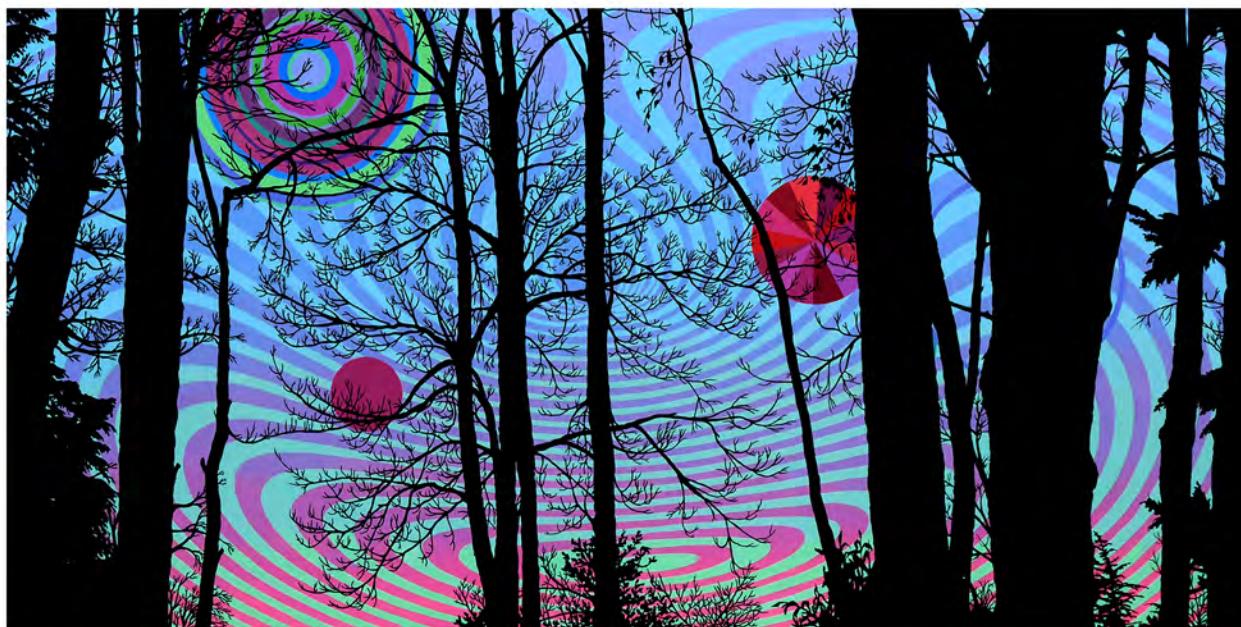
Scott McIntire, *Poppy Energy Field*, 2013, enamel on canvas, 36 x 41 inches



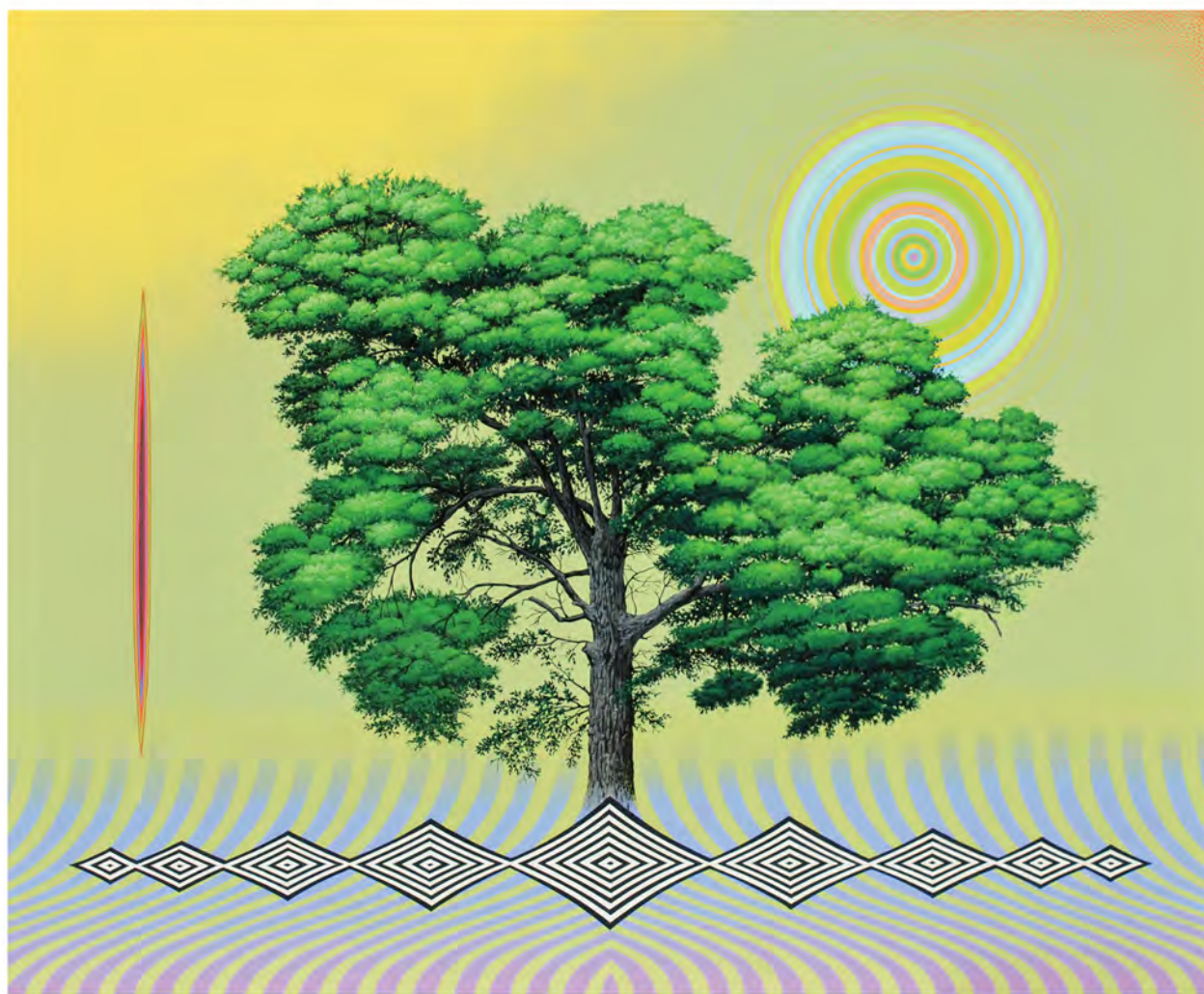
Scott McIntire, *Sumac Energy Field*, 2011, enamel on canvas, 36 x 72 inches, Courtesy of the artist



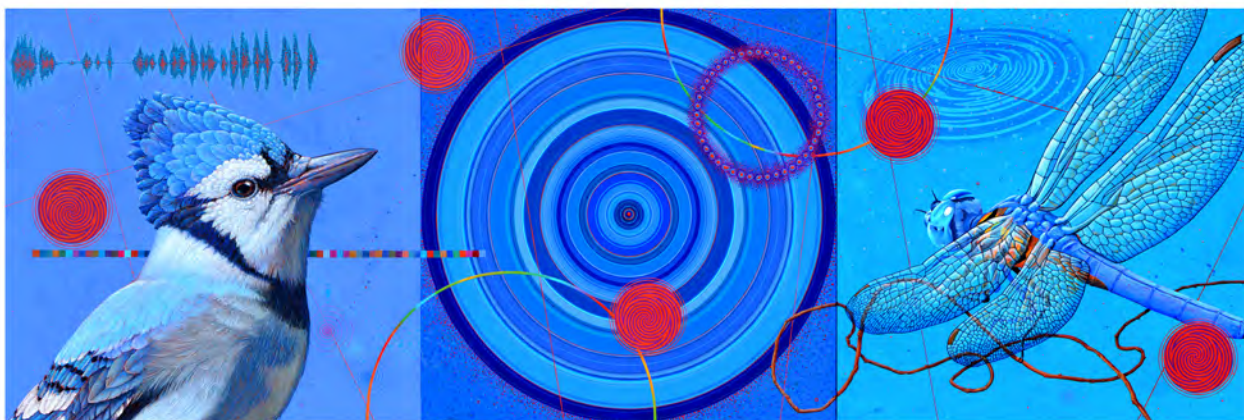
Scott McIntire, *The Delusion of Quixote*, 2008, enamel on canvas, 60 x 48 inches, Courtesy of the artist



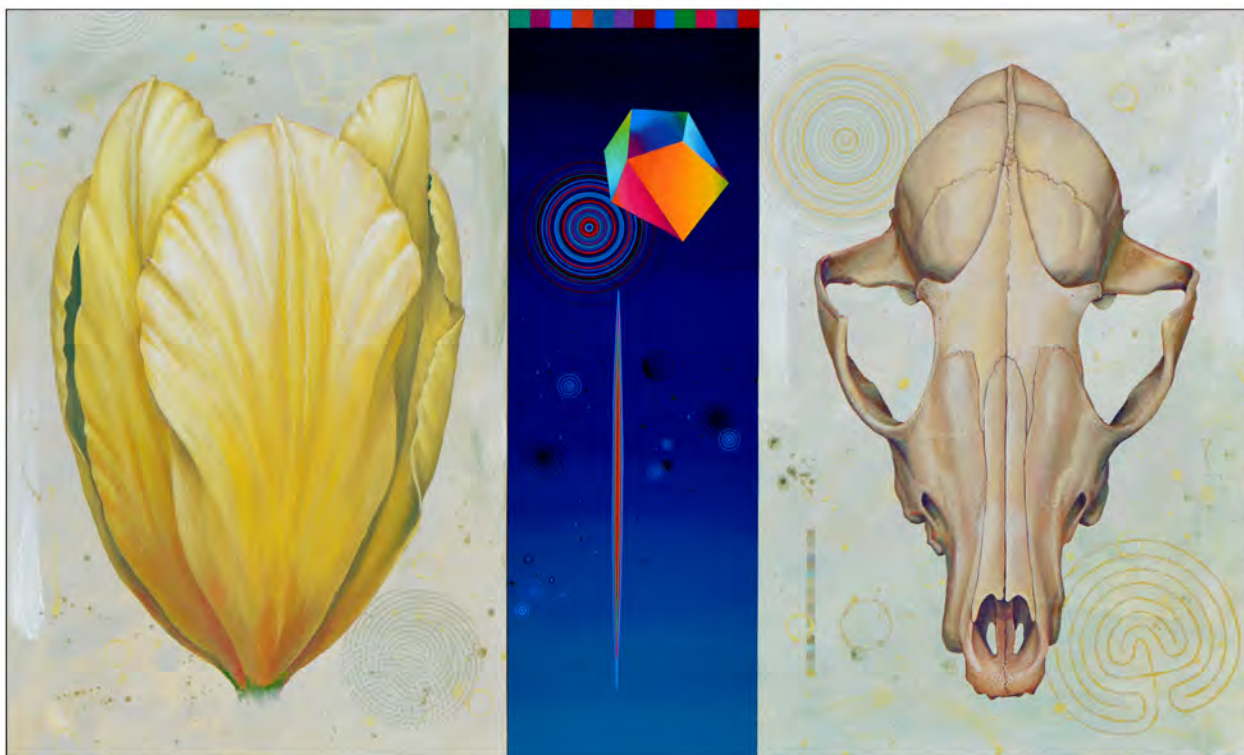
Scott McIntire, *Becket Sunrise*, 2010, enamel on canvas, 36 x 72 inches, Courtesy of the Charles and Kody Penn



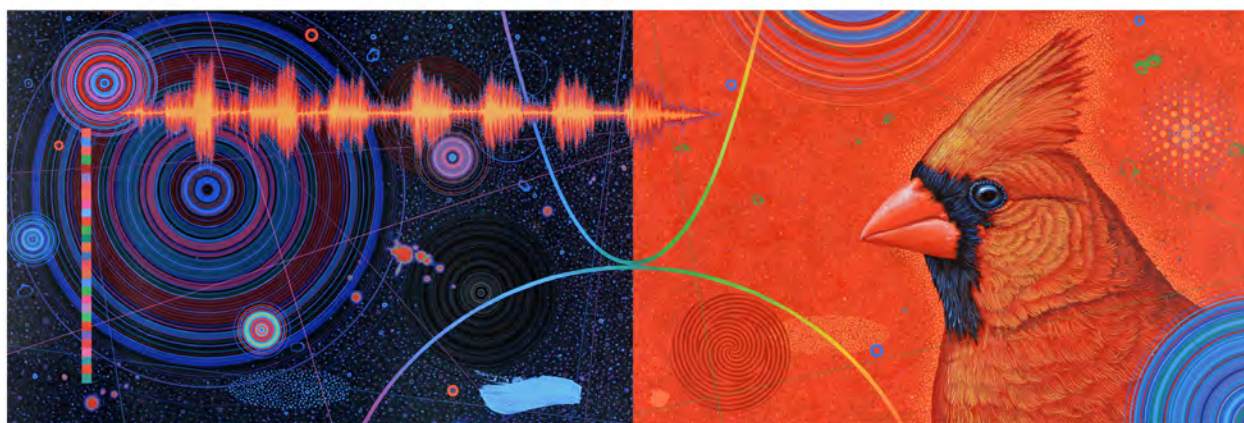
Scott McIntire, *Fear of Fracking*, 2014, enamel on canvas, 60 x 48 inches, Courtesy of the artist



Scott McIntire, *Blues in the Garden*, 2018, enamel on canvas, 36 x 72 inches, Courtesy of the artist



Scott McIntire, *Life, Death and the Space In Between*, 2018, enamel on canvas, 36 x 60 inches, Courtesy of the artist



Scott McIntire, *Cardinal Night and Day*, 2019, enamel on canvas, 24 x 72 inches, Courtesy of the artist



Scott McIntire
Energy Field 2, 2019
 enamel on canvas
 60 x 48 inches
 Courtesy of the artist



Scott McIntire, *Energy Field 1*, 2018, enamel on canvas, 36 x 72 inches, Courtesy of the artist

The Body Electric

Physics is not the only province of an energy inquiry. The “body electric,” Walt Whitman’s felicitous phrase, includes the brain waves and the synaptic transit of the nervous system. The vital signal that prompts the heart to pump, for example, uses the difference between the positively and negatively charged ions on either side of the “sodium-potassium gate” of a cell’s membrane. The amount of electricity generated by the body is slight (between 10 and 100 millivolts, by comparison with the 600 volts an electric eel produces, and the 25,000 volts needed to power a TV screen). Just as the body’s electrical currents can be measured (how an electrocardiogram works), the brain and heart can be artificially stimulated, as by a pacemaker. Nature, too, is a power source. The phosphorescence of deep sea creatures and the vast production of electricity released by “geobacters” (microbial agents in decaying cellulosic materials) are being investigated by the U.S. Department of Energy as potential renewable power sources. The great English poet Gerard Manley Hopkins saw in the dappled light of his beloved woods the “charged” world, “shining from shook foil.” The foundation of all matter, both cosmological and biological, is the marvelously poetic “string theory” that pursues the makeup of ourselves down to a subatomic level where all is energy.

This susceptibility to the minuscule has a distinguished provenance that connects art to science and mathematics. Beginning in fifteenth-century Italy, linear perspective and the play of light on form were meticulously analyzed and plotted not just by Leonardo, Filippo Brunelleschi, Piero della Francesca, Domenico Veneziano, and Leon Battista Alberti but by Albrecht Durer and Johannes Vermeer, who flirted with scientific and mathematical systems. Contemporary accounts relate that Claude Monet, glimpsing what others could not see, would rise from luncheon along the banks of the Thames and begin painting the Houses of Parliament while his fellow artists could still see only the fog. The dappled Provencal light drove the brush of Cezanne and the Grande Jatte pulsed with an atomic palette for Seurat. This attention to the overlooked has its literary counterpart in Gray’s “full many a flower is born to blush unseen” and Wordsworth’s “*violet by a mossy stone*.” Keats, in his “*Ode on a Grecian Urn*” (the “foster-child of silence and slow time”) preferred “unheard” melodies, marveling at the timeless urn’s endless capacity to “*tease us out of thought/As doth eternity*.” The superhuman sense, shared by musicians like Toru Takemitsu, Arvo Part, Claude Debussy, and Beethoven who, though deaf, coaxed moonbeams from arpeggios, is perhaps one of the factors that sets artists and scientists apart. Just as scientists use high-

power lenses and detectors (and, more and more, computing power such as that of the Event Horizon Telescope that assembled from two hundred sources the picture of a black hole in April of this year, history's largest image file at five petabytes), our artists enjoy unusual access to hyper-sensitive dimensions that yield refined works bursting with a subtle power.

Their personal understanding of the great discoveries in physics and astronomy has a visionary quality all its own. I wonder if this sharpening of the senses is not one of the biological imperatives of art itself – that age-old Darwinian notion that the keenly observed still life, landscape or portrait conditions even the viewer to see better, and so to survive. It certainly applies to Pousette-Dart, the son of two poets, who filled more than two hundred notebooks with such aperçus as *"cosmic cords are sounding fugues"* and *"the grain & points of form structure & the prismatic/ magic of light/ the molecular structure/ & energy of life itself."* In this entry, William Blake (*"to see the world in a grain of sand"*) meets e.e. cummings (*"there's a hell of a good universe next door, let's go"*): *"CIPHERING and deciphering/These grains of sand/Molecular particles spell."* It certainly applies to Pousette-Dart, the son of two poets, who filled more than two hundred notebooks with such aperçus as *"cosmic cords are sounding fugues"* and *"the grain & points of form structure & the prismatic/ magic of light/ the molecular structure/ & energy of life itself."* In this entry, William Blake (*"to see the world in a grain of sand"*) meets e.e. cummings (*"there's a hell of a good universe next door, let's go"*): *"CIPHERING and deciphering/These grains of sand/Molecular particles spell."*

Like Pousette-Dart in so many ways, Mark Tobey is a connoisseur of flux. A photograph taken in 1931 by Edward Weston shows Tobey holding the butt end of a nearly consumed cigarette in his left hand, his brow furrowed as though he were concentrating on the tiny column of white ash and the final glowing red embers at its base. In a moment, you would think, he is going to draw with it. The result might be the delicate, tiny painting in flickering red and white strokes in this show. An ardent student of Zen and Baha'i beliefs, he left his small-town Wisconsin birthplace for the Art Institute of Chicago, a pilgrimage to Haifa, Sinai, Mount Carmel, and Akka, and a stint as a teacher at the Cornish School in Seattle, where Merce Cunningham and John Cage also taught. The calligraphic dynamism of his gouaches owes a great deal to the sumi (flung ink) training he had in Japan and in Seattle with the zen master Takizaka. The titles of his great series (*Crystalline, Lights, Meditative, Void, Above the Earth*) all reflect the wintry asceticism of this delicate master of the web, so different in his lightness from the black on white of Pollock. The cloudlike effect of color floating on top of

color, backlit by an inner light that resonates with his spirituality, also bears comparison with Rothko. A composer, capable keyboard player and poet, his *"Portrait"* echoes the Japanese tradition in a manner reminiscent of Ezra Pound:

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You are as a dead thing living...

One from the mountains, walking in the valleys,

And your face has the sadness of pale imprisoned moons.

You are like a white lotus, floating upon an opal sea,

Men dream of you, but do not find you,

Your path lies alone, strewn with stars.

Einstein's Gallery

Context counts. Winston Link's witty and almost too-familiar photograph *Hotshot, Eastbound* (1956) captures the improbable juxtaposition of plane, locomotive and the parked cars of a drive-in (the Sugimoto connection is inevitable). How elegantly its simultaneity fits the paradigmatic explanation of relativity by which Einstein uses moving trains (not forgetting the importance of "railroad time," which collated distance with clocks)! This exhibition coincides with the centenary of the 1919 eclipse that proved General Relativity, which began as a paper on photo-electric observations and ended as the original iteration of quantum physics. It took three decades for fission to convert mass to energy, and then the weapon so chillingly captured here in a small but unforgettable scientific image, originally part of a profound exhibition in 2011 at Peter Blum's supremely insightful gallery. Just as Tesla passed by the gates of the Frick mansion before it was our museum en route from the Waldorf Astoria to his laboratory in what is now Shoreham, it is astonishing to think that Einstein also lived on Long Island. Having spent one summer in Huntington, in 1939 he rented a small house on Cove Road in the woods of Nassau Point on the North Fork. He sailed in Horseshoe Bay and played his violin (Bach solo partitas) and walked for hours along Peconic Bay. He was trying to answer Franklin Delano Roosevelt's urgent question of whether nuclear energy could be turned into a weapon. Edward Teller drove from Manhattan to draft a famous letter confirming that it would be feasible to build "extremely powerful bombs of a new type." The rock where Einstein sat and contemplated the potential fallout, which could not at that time be calculated, is at the edge of Peconic Bay on Nassau Point. When Robert Wilson and Philip Glass composed their opera *Einstein on the Beach*, it was a Long Island story, much as Doug Argue's immense painting *Dancing on the Beach* is also related to this bit of history. The cultural historian William Everdell deftly brings Einstein on stage in *The First Moderns*, his magisterial study weaving the epistemology of the new physics with the shattered aesthetics of Cubism, musical Serialism, the poetics of Modernism and the fragmented yet epic brilliance of James Joyce: "In physics, light dawns. It has a suddenness rare in painting or fiction. Einstein's four greatest ideas –the quantum interaction of light with matter, Special Relativity, the equivalence of matter and



O. Winston Link
Hot Shot Eastbound, 1956
gelatin silver print
15 x 19 inches
Courtesy of the
H. Manes Art Foundation

energy, and General Relativity—were all conceived in and out of that little office in Bern...Redefining time so that simultaneity no longer had any meaning, and asserting that the maximum velocity and the only absolute in the universe was the speed of light in a vacuum, Einstein rewrote the ancient science of kinematics.”

The epochal equation, $E=mc^2$, is at the core of this exhibition, which (like the experiments at Brookhaven), essentially turns light and energy and ideas into mass, in the form of paintings, photographs and sculpture. James Rosenquist's complex work *Time Stops the Face Continues* is the hinge upon which the show pivots. Whether Pollock, Tobey, and the abstract contingent, or Rosenquist, Prey, Celmins and McIntire (where mimesis stakes its ground), the near-impossible effort to make the invisible become visible depends upon one medium: painting. Even deep inside the metaphysical meanings of his vast and ambitious work, which progresses from realism to abstraction as you move left to right, his late-night brainstorm obeyed his commitment to paint. There is an irresistible charm to the related sculpture, its two pencils sharpened at both ends and spread like the hands of a clock. He shattered nearly a dozen bulbs drilling into them before getting this one right. "If an idea spurs you on to do something, it should have some pictorial power. What does a great idea look like, after all?" Answering his own query, speeding along the learning curve before our eyes, Rosenquist attains the seemingly impossible, wrestling Einstein's warped space-time continuum to the canvas. Rosenquist was fascinated by the unified field theory, especially its stipulation of the curved effect of gravitational forces exerted by the planets. "Art isn't science," he admitted. "These recent paintings are intent on saying something about the significance of time, from my own long history of painting and experience dealing with space and spatial compositions." It is not coincidence that the two series, *The Speed of Light* and *Time Blades*, had their genesis just after Rosenquist experienced the Paleolithic paintings and, deeper into geological time, the stalactites and stalagmites of the caves near Guernica.

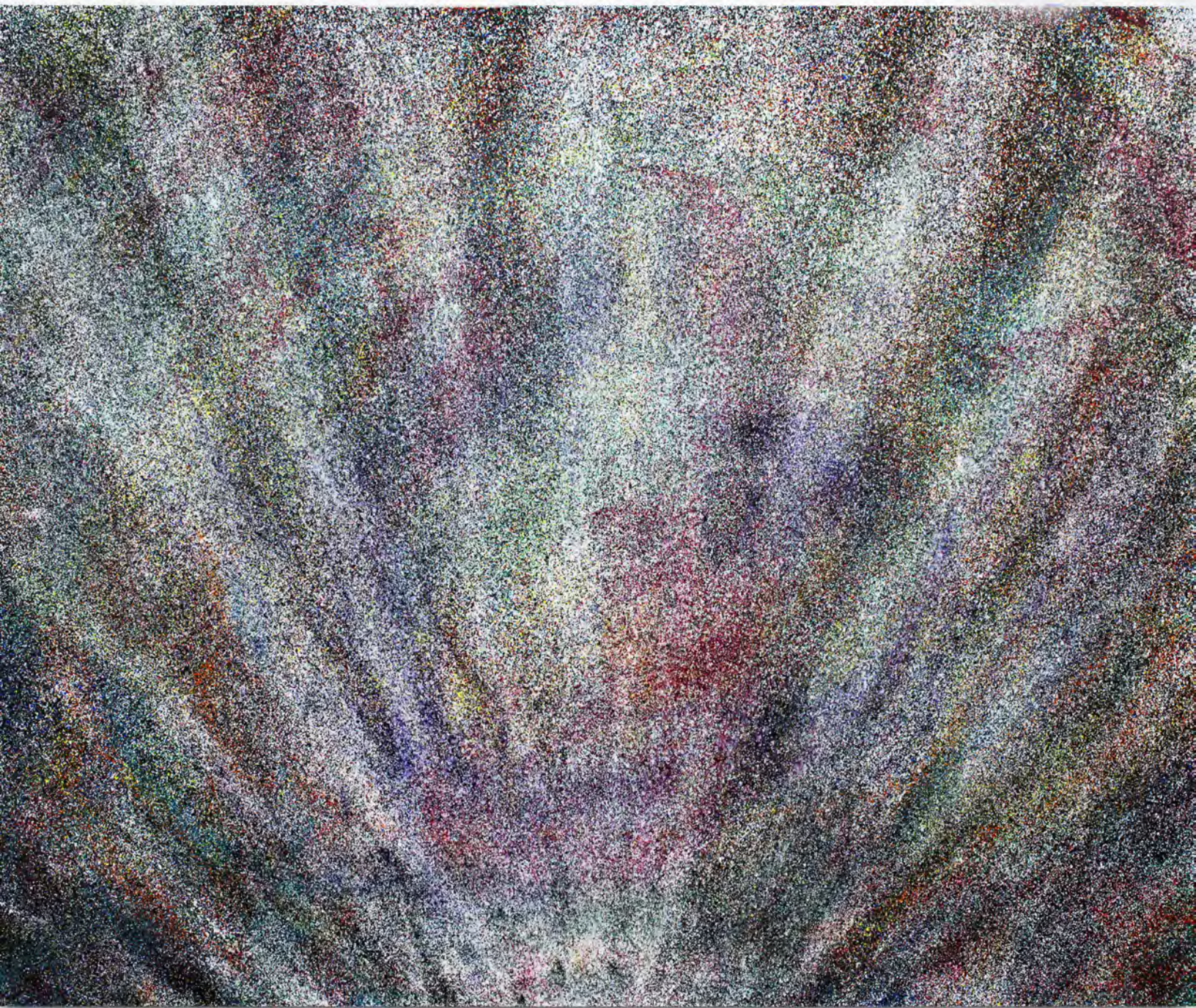


James Rosenquist, *Time Stops the Face Continues*, 2008, oil on canvas, with painted and motorized mirror, 60 in. x 12 ft. 6 in. x 66 1/2 in, comprised of two panels (60 in. x 75 in. each), Courtesy of the Estate of James Rosenquist



The Living Edge of Form

Where Einstein had mathematics, Leonardo relied upon acuity of observation and uncanny technique as a draughtsman. The mimetic exploration of the physics of light, energy, sound and atmosphere remains a potent line of inquiry. The abstract alternative is offered by the dynamic Expressionism of Pollock, Tobey and Pousette-Dart's "living edge of form." One of the top-flight contemporary painters working in the abstract idiom is Doug Argue, who visited the museum before the exhibition (having been dancing on the beach at Montauk that morning) to measure the huge white walls and scope out the adjacent window. He returned to his studio in Jersey City to finish, in a Pollock-inspired explosion of daubed color and delicate calligraphy (yes, those are stretched letters, lifted from the poetry of Arthur Rimbaud) his magnificent *Dancing on the Beach* just in time for the show. Argue is a polymath whose work has been inspired by literature, linguistics and physics, including the exact type of subatomic activity at Brookhaven. A virtuoso of painterly effects on a lavish scale, in the same vein as Rosenquist, the Minnesota-born Argue's vast and exuberant works are featured in Conde Nast's lobby at the World Trade Center. He has a Heraclitean gift for exploring the eternal mutability of our universe: "There are many different histories in the world, and we often see things in the current moment, yet have no idea what lies beneath. There is no still moment. I am trying to express this flux, this constant shifting of one thing over another, like a veil over the moment itself."



Doug Argue, *Song Cycle*, 2019, oil on canvas, 100 x 120 inches

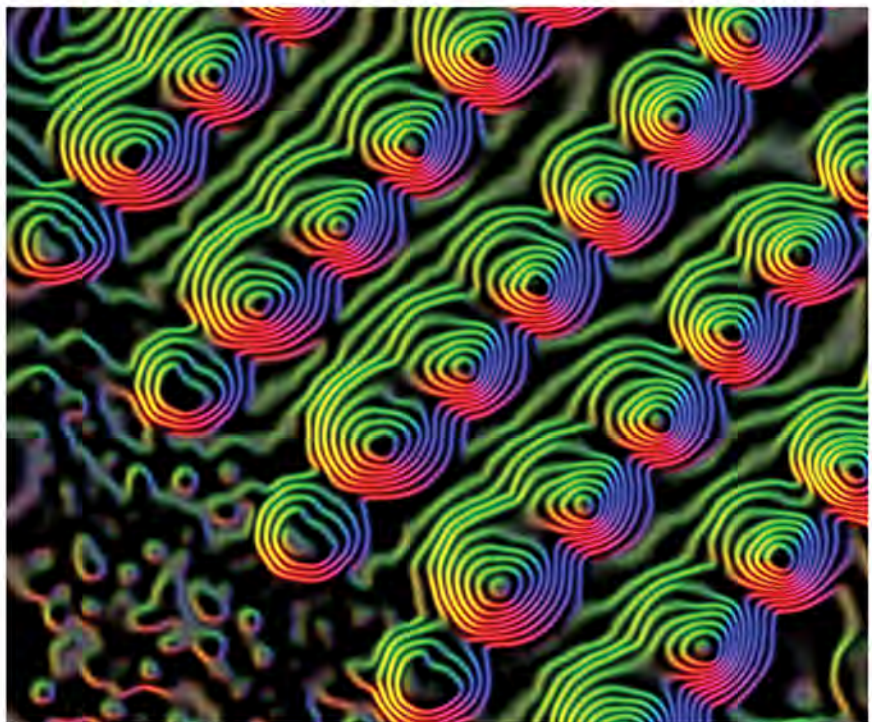
Like Poussette-Dart and Tobey, whom he admires, Argue relies on accents of white for the radiant flickering as well as the exquisite spherical basis of his texture to capture light. I placed him in the same gallery as another virtuoso, Julie Mehretu, who crosses conceptually from one level of energy to power of many kinds, mapped in networks of global complexity. Her stunning achievement in *Skybox* involves not just the way in which she invokes a complex, three-dimensional space, but her extraordinary summoning of different moments of time in a simultaneous image governed by a geometric clarity that is worthy of Plato's *Timaeus*. Like Rosenquist and Argue, she works on an epic scale with precision and a delicacy of touch. There is an ascetic calm to the painting that is paradoxical given her childhood in war-torn Ethiopia and her deep empathy for places where conflict rages. She presents the view from way above the strife. It is the perspective of the UN relief plane, the drone, the satellite or spacecraft—of Plato's governing Intellect watching over creation, or of Plato's soul looking down on the living after death. When your land is being torn apart around you, this is the philosophical point of view that coheres.

Doug Argue
Dancing on the Beach,
2019, oil on canvas
80 x 120 inches

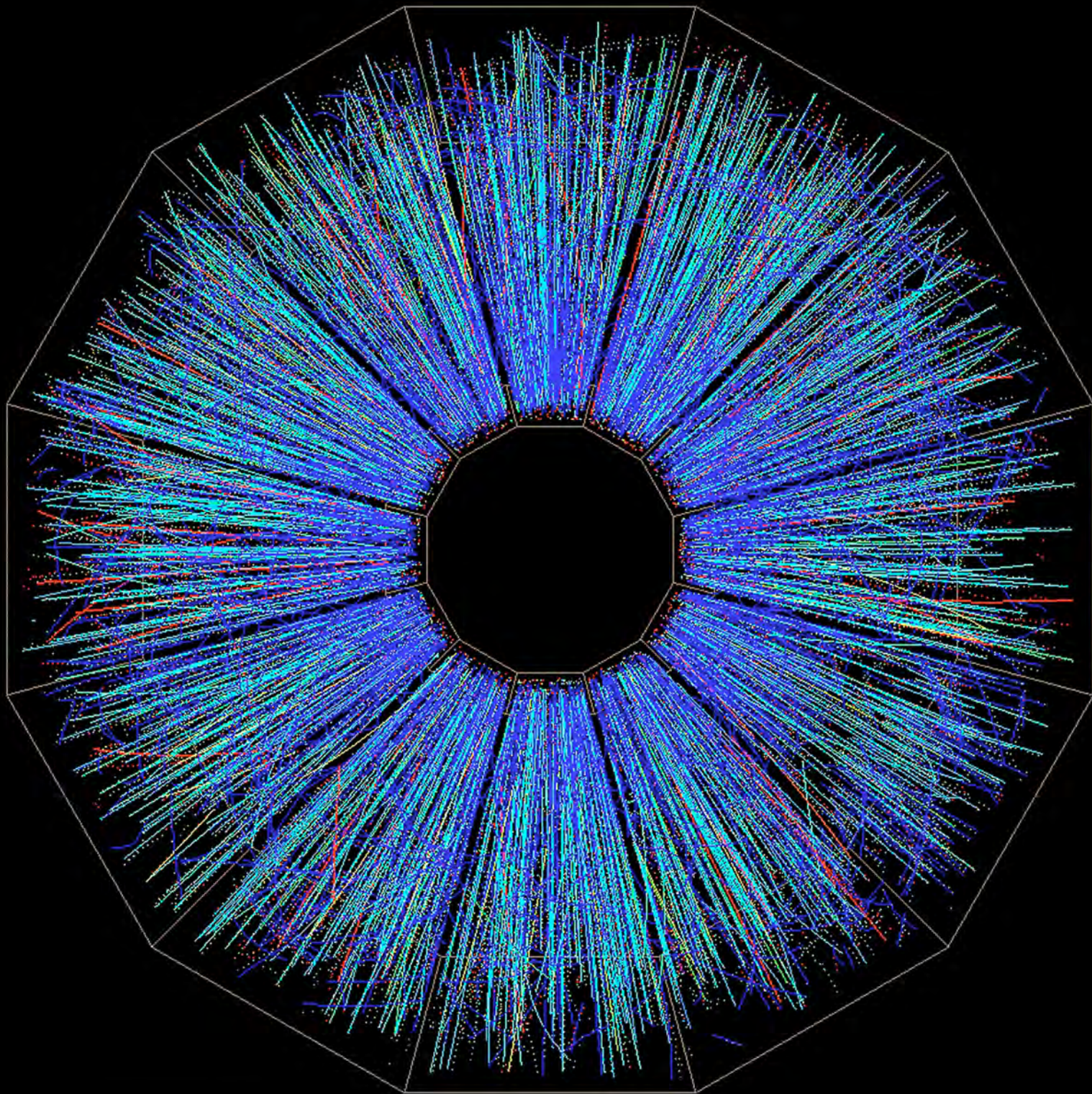


Picturing Science at the Speed of Light

Viewed from above, the circle is the dominant topographical motif of the 5,265-acre campus of Brookhaven National Laboratory, deep in the woods on eastern Long Island. The world's leading physicists (seven Nobel laureates and counting) convene at the 2.5-mile circuit of the Relativistic Heavy Ion Collider, around which subatomic particles race at nearly the speed of light. Next to it is the circular white building of the synchrotron, from which the purest "beamline" can be trained on rocks billions of years old, paintings by Rembrandt and Breughel, rare materials and biological samples, yielding the exquisite prints in the exhibition produced using the pioneering imaging techniques that are transforming neurosciences, structural biology and environmental science. Scientists at Brookhaven have discovered subatomic particles, new forms of matter, solutions for energy demands of the future and life-saving medical imaging techniques and are working on quantum computing, nano-technology and the peaceful applications of atomic energy (including the admirable peacekeeping mission of monitoring and limiting the global proliferation of nuclear weapons). In the collider they have recreated matter as it existed just after the Big Bang—more than 13 billion years ago—to study how subatomic particles and their interactions gave shape to the visible matter of the universe today.



Magnetic Flux Lines on Nickel:
2006 photo
Courtesy of Brookhaven
National Laboratory



STAR Collision: 2000 photo, Courtesy of Brookhaven National Laboratory

Just northwest of Brookhaven is Nikola Tesla's laboratory Wardenclyffe, one of Long Island's newest and most exciting museums. If the Serbian visionary's plans for the wireless transmission of power from its 187-foot tower had materialized (J.P. Morgan cut off his financing in 1903 at a crucial juncture) the course of world history would have changed. Born, according to family lore, during a lightning storm, a gifted mathematician who began as an electrical engineer with a telephone company in Budapest, he conceived a rotating magnetic field for an induction motor as an image that he drew in the sand during a stroll through the park. Working for Thomas Edison, he designed dynamos in Paris, which Henry Adams, in a chapter of his autobiography titled *"The Dynamo and the Virgin,"* called "a symbol of infinity." Tesla arrived in New York in 1884 to attempt to make Edison's weak grid of streetlights more efficient, and hoping to replace direct with alternating current. In 1891, a new American citizen, he invented the Tesla coil, followed by the fluorescent light, laser beam, and a plan for the wireless transmission of electricity (WiFi avant la lettre [lettre]). Eventually he joined forces with George Westinghouse, who backed his revolutionary hydroelectric power plant in Niagara Falls which was completed in 1895. In Subsequently, in a lab in Colorado, Tesla discovered terrestrial stationary waves, which meant the earth itself could be used to conduct electricity. With the support of J.P. Morgan, in 1901 he commissioned Stanford White to build Wardenclyffe on Route 25A in Shoreham (interestingly, he would drive each day past the Frick mansion on his way from the Waldorf Astoria). In 1915, he was rumored to have won the Nobel Prize for physics with Edison, but neither would share the award. Morgan pulled his backing when the monetization of a wireless power grid was questioned, and Tesla faded into obscurity. He died in a Manhattan hotel in January 1943 at the age of 86.



Plant Image: 2018 photo
Courtesy of the Tesla Center
at Wardenclyffe, Shoreham, NY

Check photo date and copy

That pure white light whipping through the synchrotron flashes through the exhibition in many forms, from the lightning strokes of Pousette-Dart, Tobey, Argue, Krieger, and Carton to the stellar instants when flecks of gouache flicker on the surface of Prey's watercolors or the paper glints in Celmins' prints. It spreads from the radiant screens of Sugimoto's theaters across the room to the flecks of reflected lamplight in Miles Coolidge's Wagnerian coalmines. A Montreal native, Coolidge photographed the active Ruhr valley mine with an 8 x 10 camera, using long exposure times to collect the extraordinary range of textural detail and the way it deflects the minimal light made by miners shining their flashlights on the walls. He printed them using a carbon-based pigment, essentially returning coal itself to the paper. This valley

is also known as the stomping grounds of Bernd and Hilla Becher, Coolidge's teachers at the Düsseldorf Kunstakademie. Among the most subtle and unforgettable masterworks of contemporary photography, Hiroshi Sugimoto's bewitching series of more than 130 Theaters are the epitome of the artistic collation of time and light, delivering the full passage of a movie in one radiant instant. He opens the shutter at the start of the movie and closes it at the end, equal to approximately 172,800 photographic images flitting by in two hours. He was 26 years old when he had the idea:



*Tesla Coil, vintage demonstration model
Courtesy of the Tesla Center at Wardencliff, Shoreham, NY*

I'm a habitual self-interlocutor. One evening while taking photographs at the American Museum of Natural History, I had a near-hallucinatory vision. My internal question-and-answer session leading up to this vision went something like this: "Suppose you shoot a whole movie in a single frame?" The answer: "You get a shining screen." Immediately I began experimenting in order to realize this vision. One afternoon I walked into a cheap cinema in the East Village with a large-format camera. As soon as the movie started, I fixed the shutter at a wide-open aperture. When the movie finished two hours later, I clicked the shutter closed. That evening I developed the film, and my vision exploded behind my eyes.

Light dominates the common ground between art and science. Turning back again to Leonardo's optics and barreling ahead through Brunelleschi and Caravaggio to Seurat, Turner, Monet and Bonnard, the artistic pursuit of luminescence was always something of a losing battle. Even the brightest paint on the palette, lead white in Turner's time, then zinc and titanium closer to our own, or the white of the paper in a watercolor, can't hold a candle to the candle power of a dim light bulb. Next comes the realm of infrared, ultra violet, microwaves, cellular transmissions, gluons or other subatomic particles that test the boundaries of experimentation in the name of the liberating model of "super" string theory. An estimated 71% of the universe is constituted of "dark energy," neither mass nor light, making the black hole image all the more prophetic. What brush or paint could hope to convey any suggestion of the subtleties of a concept this rarefied? Physics, thanks to Ernest Rutherford, James Clerk Maxwell, Max Planck, Werner Heisenberg, Einstein and others, has moved from the examination of energy fields that were electromagnetic to those that are gravitational (the Yang-Mills field of gluons) and nuclear ("strong and weak"), ultimately culminating in the unification of the Higgs field, posited by the Scottish physicist Peter Higgs nearly half a century ago. Here is Brian Green, in his masterful book *The Fabric of the Cosmos*, on the evanescent world our artists have put on canvas and paper: "Living among radio and television broadcasts, cellphone communications, the sun's heat and light, we are all constantly awash in a sea of electromagnetic fields...When you see something, you can think of it in terms of a waving electromagnetic field entering your eye and stimulating your retina, or in terms of photon particles entering your eye and doing the same thing." Five hundred years ago, a great artist died who had sensed the possibilities of this magnificent idea. His name was Leonardo da Vinci. His notebook includes this powerful quotation: "The air is full of infinite lines, straight and radiating, intercrossing and interweaving without ever coinciding one with another; and they represent for every object the true form of their reason (or their explanation)."



Miles Coolidge
Coal Seam, Bergwerk Prosper-Haniel #2, 2013
 pigment inkjet print
 57 x 50 inches
 Courtesy of the artist and Peter Blum Gallery,
 New York

Miles Coolidge
Coal Seam, Bergwerk Prosper-Haniel #5, 2013
 pigment inkjet print
 57 x 50 inches
 Courtesy of the artist and Peter Blum Gallery,
 New York

Seeing and Believing



Hiroshi Sugimoto
Fifth Avenue Theater, Seattle, 1997
gelatin silver print
edition: AP 1/5
Courtesy of Yoshii Gallery, New York

Hiroshi Sugimoto
Kino Panorama, Paris, 1998
gelatin silver print
edition: AP 1/5
Courtesy of Yoshii Gallery, New York

Hiroshi Sugimoto
Prospect Park Theater, New York, 1977
gelatin silver print
edition: 15/25
Courtesy of Yoshii Gallery, New York

Philosophers would agree that the conjunction of truth and beauty only survives in a universe that encourages faith in the unseen and unheard, from the celestial music of the spheres to which Greek pre-Socratic thought tuned its lyres to the elegant pulse of subatomic energy posited by superstring theory. Reflecting on the brilliance of Cezanne as thinker, the great German poet Rainer Maria Rilke wrote to his wife Clara from Paris about the profound way in which great art, cosmic painting, holds together the invisible and the visible, the temporal and the eternal: "How of one piece is everything we encounter, how related one thing is to the next, how it gives birth to itself and grows up and is educated in its own nature, and all we basically have to do is to be, but simply, earnestly, the way the earth simply is, and gives her consent to the seasons, bright and dark and whole in space, not asking to rest upon anything other than the net of influences and forces in with the stars feel secure." At the summit of human thought, a dialogue is convened. The topic of energy convenes the "two cultures" that the physical chemist and renowned essayist C.P. Snow identified in a controversial address at Cambridge University in 1959, which dramatized the split between art and science. He warned that the adversarial relationship would jeopardize our capacity to solve imminent global problems, twenty years before the introduction of the term "Anthropocene." Do we share an innate hankering for the marriage of truth and beauty (the passionate coda to Keats's *"Ode on a Grecian Urn"*)? It has been frustrated by, on the one hand, the unknowable quality of the former (Plato insisted it was obscured by the appearances of the real) and the invisibility of the latter (even Einstein respected the edge dividing theory and application). Aesthetics is not considered a science which demands mathematical and experimental proof. Yet the art and the laboratory images gathered in this exhibition summon our love of yearning for the truth in beauty. Like the metaphoric imagery of constellations, that age-old shared space between the poet and the astronomer, the art of science and the science of art strike an uncanny harmony. Consider these lines from Christopher Marlowe:

*Our souls, whose faculties can comprehend
—The wondrous architecture of the world
And measure every wandering planet's course,
Still climbing after knowledge infinite,
And always moving as the restless spheres
Will us to wear ourselves and never rest.*

The View from Above: Julie Mehretu

In the thematic context of art's intersection with astrophysics, Julie Mehretu's ...capacious mind spans a broad range of source materials from space shuttles and windmills to metaphorical evocations of power, light, space and time. Less visually layered than some of her larger and more vigorously expressionist paintings, the early work *Skybox* delicately arranges its geometric and calligraphic figures on a ground that employs a subtle palette of cool and creamy whites and grays. At first glance the viewer engages with the sparse use of line, bent into awkward angles like strands of wire. Filigrees of ink scatter in quiet rhythms across the surface, like a child's game of pick-up sticks that has been interrupted by some portentous event, or the letters of a coded message. Tributaries or borders define interiors, gently floating upon an underlying hexagon that simultaneously suggests a recessionary, three-dimensional space even as it conflates it.

A valuable hint toward the manifold meanings is offered by the title, *Skybox* conjures the act of looking down at an event, somewhat in privacy, and from a great height. Like the famous photograph of earth taken from the Apollo 11 spacecraft, marking its fiftieth anniversary just as the show opened, the point of view from a vast distance offers the chance to reconstruct a world that has been fractured. The painterly paradox involves conveying complexity with mere ink and paint on canvas. Mehretu asks: "How can abstraction really articulate something that is happening?"

The urgent effort to grasp world events is deeply personal. Born in Addis Ababa, the capital of Ethiopia, in 1970, Julie Mehretu's worldview developed amid political unrest. Her education led her abroad, first to the University Cheikh Anta Diop in Dakar, then Kalamazoo College for her BA followed by an MFA from Rhode Island School of Design and residencies in West Africa and Houston. Her bi-cultural perspective mirrors the complexities of the twenty-first century and the paradoxes of globalization and local regions of conflict. In her words:

I'm trying to locate myself...that was the point of departure in all the work, trying to make sense of the version of history and reality that my whole family in Ethiopia is living in, and another one that exists here with my parents and my grandmother and yet another one that I experience.



Julie Mehretu
Skybox, 1998
ink and polymer on canvas
42 x 60 inches
Courtesy of Salon 94, New York

Mehretu's early exposure to upheaval informs her vision, exposing political, social, global and domestic issues including references to genocide, war, religious intolerance, racism and geopolitics. Her fearless and sophisticated work has been described as "socially engaged abstraction." There is an almost encyclopedic range to her thought. The broader pictorial themes she touches upon are culled from a rich vocabulary of flight patterns, city squares, airports, highways, subways, computer screens and games, family genealogies, comets, stadiums, amphitheaters, blazes, explosions, graffiti, comics, skateboard graphics, tattoos, hot-rod flames, news photographs of riots and uprisings, and maps – of armies, immigration, war, famine, and climate.

Mehretu's work also draws upon a deep repertoire of art historical references both representational and non-objective, including Baroque engravings, Robert Motherwell, Japanese and Chinese calligraphy, Ethiopian illuminated manuscripts, German Renaissance landscape painting, Otto Wagner's drawings and Leonardo da Vinci's scientific studies. The cumulative effect of these stimuli, as seen in *Skybox*, accords perfectly with our theme of energy. Mehretu has spoken of her desire to "convey and reflect... speed, dynamism, struggle and potential" and to create "narrative maps without a specific place or location."

Mehretu's invocation of kinesis in her more loaded paintings and murals has been compared to the Italian Futurist Italian Giacomo Balla's brazen depictions of motion and light. Balla's *perpetuum mobile*, however, stands in contrast to Mehretu's quiet compression of time in *Skybox*. Here the artist's skittering letter-like gestures (similar to Doug Argue's paintings in the same gallery), are under tight control. The map-like structure of Mehretu's painting supports small clusters of energy, calling to mind the systems of motion, nests, winds, webs, that inform all her work, articulated in line, shape, texture, and edges. The painting is open and restless, yet its economical, forms of expression provide an elegant contrast to the near-chaotic activity of her later paintings. Viewers are left to ponder its many possible meanings, and to synthesize and reconstruct the elements she shares from her deconstructed world.

--Laura Lynch



Scientific Photo
Untitled A-Bomb Blast, c. 1950s
c-print
6 5/8 in x 4 5/8 in.
Collection of Peter Blum, New York

