

MOUNT WILSON OBSERVATORY • SATURDAY AND SUNDAY • JUNE 3 & 4 • 2017

KNOWLEDGES



KNOWLEDGES is an artist-organized curatorial initiative into the expanded field. Our primary focus is to examine sites that raise existential questions. Our first two major projects have examined Mount Wilson Observatory as a nexus of creative inspiration. We facilitate tours for artists to connect with and experience the site, gather research and produce a public exhibition with publication. Working closely at the intersection of site and observation, we ask how can art open new understandings of place?

KNOWLEDGES at Mount Wilson Observatory brings together a constellation of contemporary Los Angeles artists whose work extends from the nexus of ideas embodied by the Observatory itself: astronomy, scientific discovery, space exploration, optics, recorded observation, philosophical questions of cosmology, the history, aesthetics and ecology of the site and its influence upon the cultural landscape of Los Angeles. The exhibition concept is to create a site-specific dialogue between artists and the working Observatory. Many Los Angeles artists create work that is informed by technological and scientific discoveries that take place right here in Southern California from the use of new materials created for the aerospace industry to aesthetic sensibilities informed by popular space photography, but they have never investigated their source.

The 2017 exhibition is curated by **KNOWLEDGES** founding director **Christina Ondrus**, with additional programming contributions by **John Hogan**, **Ian James**, **Gabie Strong**, and **Brica Wilcox**.

KNOWLEDGES is a recipient of an inaugural Artist Project Grant from the **Mike Kelley Foundation for the Arts**.



SCHEDULE

SATURDAY 10AM - 6PM

10 AM

EXHIBITION OPENS TO THE PUBLIC

10 AM - 7:30 PM / ASTRONOMICAL MUSEUM THEATRE
JEFF CAIN: *BLINDSPOT* (CONTINUOUS LOOP)

10 AM / 60-INCH TELESCOPE (OUTDOOR)
ALICE KÖNITZ, *OBSIDIAN DISK #1*

DISCLAIMER: VIEW AT YOUR OWN RISK FOR NO LONGER THAN A FEW SECONDS.

2 PM / OFF PATHWAY, NEAR GARAGE

KRYSTEN CUNNINGHAM, *HUMAN LOOM*,
INTERACTIVE ACTIVITY

4 PM / 100-INCH TELESCOPE

SCOTT BENZEL, *MATHESIS AND MATHEMATIKOI* (± 20 MIN)

4 PM / OFF PATHWAY, NEAR GARAGE

KRYSTEN CUNNINGHAM, *HUMAN LOOM*, INTERACTIVE ACTIVITY

5 PM / 100-INCH TELESCOPE

SCOTT BENZEL, *MATHESIS AND MATHEMATIKOI*
(± 20 MIN)

5 PM / VISITOR PAVILION / COSMIC CAFÉ

(NEAR PICNIC TABLE ON SOUTH-WEST SIDE)
ALICE KÖNITZ, *OBSIDIAN DISK #2*

DISCLAIMER: VIEW AT YOUR OWN RISK FOR NO LONGER THAN A FEW SECONDS.

6 PM / 100-INCH TELESCOPE

SCOTT BENZEL, *MATHESIS AND MATHEMATIKOI*
(± 20 MIN)

6 PM - 9 PM / GALLEY

SNACKS AND SUCH BY BOB DORNBERGER
(± 20 MIN.)

SATURDAY NIGHT 7PM - 10PM

7 PM / HOTEL RUINS

HARISANT, GONG CEREMONY

7 PM / VISITOR PAVILION / COSMIC CAFÉ

ALICE KÖNITZ, *OBSIDIAN DISK #3*

DISCLAIMER: VIEW AT YOUR OWN RISK FOR NO LONGER THAN A FEW SECONDS.

7 PM / 6-INCH BRASHEARS REFRACTOR TELESCOPE

FREE PUBLIC VIEWING SESSIONS BEGIN

8 PM / 100-INCH TELESCOPE, OUTSIDE

ANNA LUISA PETRISKO PERFORMANCE

8:30 PM / ASTRONOMICAL MUSEUM THEATRE

LANTERN SLIDE SHOW CURATED BY BRICA WILCOX

9 PM - 10 PM / ASTRONOMICAL MUSEUM THEATRE

JEFF CAIN, *BLINDSPOT*, (CONTINUOUS LOOP)

9:50 PM / 100-INCH TELESCOPE, OUTSIDE

ANNA LUISA PETRISKO PERFORMANCE

10 PM / ASTRONOMICAL MUSEUM THEATRE

LANTERN SLIDE SHOW CURATED BY BRICA WILCOX

11 PM - 12 AM / ASTRONOMICAL MUSEUM THEATRE

JEFF CAIN, *BLINDSPOT*, (CONTINUOUS LOOP)

1 AM / CLOSE

SUNDAY 10AM - 7PM

10 AM

EXHIBITION OPENS TO THE PUBLIC

10 AM - 11 AM / ASTRONOMICAL MUSEUM THEATRE
JEFF CAIN, *BLINDSPOT*, (CONTINUOUS LOOP)

12 PM - 2 PM / ASTRONOMICAL MUSEUM THEATRE

MARGARET WERTHEIM: *MAKING SPACE AT MOUNT WILSON: AN EXPLORATION OF CONCEPTS OF SPACE IN MATHEMATICS AND COSMOLOGY.*

SESSION I: SEMINAR: HERE WE WILL DISCUSS THE HISTORY OF WESTERN CONCEPTS OF SPACE FROM DANTE TO STRING THEORY, VIA DESCARTES, NEWTON, EINSTEIN AND KALUZA-KLEIN IDEAS. (OPEN SEATING)

2 PM / OFF PATHWAY, NEAR GARAGE

KRYSTEN CUNNINGHAM, *HUMAN LOOM*,
INTERACTIVE ACTIVITY

3 PM - 5 PM / ASTRONOMICAL MUSEUM THEATRE

MARGARET WERTHEIM: *MAKING SPACE AT MOUNT WILSON: AN EXPLORATION OF CONCEPTS OF SPACE IN MATHEMATICS AND COSMOLOGY.*

SESSION II: WORKSHOP: HERE WE WILL CONSTRUCT
PAPER MODELS OF NON-EUCLIDEAN SPACES. REGISTRATION REQUIRED FOR WORKSHOP.

4 PM / 100-INCH TELESCOPE

SCOTT BENZEL, *MATHESIS AND MATHEMATIKOI*
(± 20 MIN)

5 PM - 7 PM / ASTRONOMICAL MUSEUM THEATRE

JEFF CAIN, *BLINDSPOT*, (CONTINUOUS LOOP)

5 PM / 100-INCH TELESCOPE

SCOTT BENZEL, *MATHESIS AND MATHEMATIKOI*
(± 20 MIN)

6 PM / 100-INCH TELESCOPE

SCOTT BENZEL, *MATHESIS AND MATHEMATIKOI*
(± 20 MIN)

6:30 PM / HOTEL RUINS

HARISANT, GONG CEREMONY

7 PM / CLOSE

TICKETED EVENTS

SATURDAY, JUNE 3 2017

7 PM / 100-INCH TELESCOPE

ODEYA NINI: PERFORMANCE & CELESTIAL VIEWING

7:30 PM / 60-INCH TELESCOPE

TARA JANE O'NEIL: PERFORMANCE & CELESTIAL VIEWING

8:20 PM / 100-INCH TELESCOPE

CONSTANCE DEMBY: PERFORMANCE & CELESTIAL VIEWING

8:50 PM / 60-INCH TELESCOPE

WHITE MAGIC: PERFORMANCE & CELESTIAL VIEWING

10 PM / 100-INCH TELESCOPE

ERNEST GIBSON: PERFORMANCE & CELESTIAL VIEWING

10:10 PM / 60-INCH TELESCOPE

SUN ARAW: PERFORMANCE & CELESTIAL VIEWING

11:20 PM / 100-INCH TELESCOPE

MATTHEWDAVID: PERFORMANCE & CELESTIAL VIEWING

SATURDAY, JUNE 3 2017

2 PM / 100-INCH TELESCOPE

CONSTANCE DEMBY: SONIC STEEL SPACE
BASS PERFORMANCE

QUASI-SPIRALS OF TIME AND SPACE

FOR MANY
MOUNT WILSON OBSERVATORY
IS A SINGULARITY,
FOR OTHERS
IT IS A MULTIPLICITY.

BY
CHRISTINA ONDRUS



[6] Mount Wilson Observatory (MWO) is an astronomical observatory located on Mount Wilson, a 5,710-foot peak in the San Gabriel Mountains, northeast of Los Angeles, CA



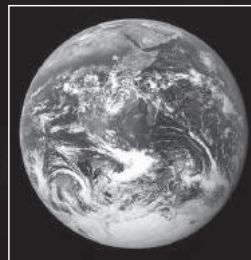
[5] Heliocentric model from Nicolaus Copernicus' *De revolutionibus orbium coelestium* (On the Revolutions of the Heavenly Spheres) [public domain]

[4] The history of life on Earth began about 3.8 billion years ago, initially with single-celled prokaryotic cells, such as bacteria. Multicellular life evolved over a billion years later and it's only in the last 570 million years that the kind of life forms we are familiar with began to evolve, starting with arthropods, followed by fish 530 million years ago (Ma), land plants 475Ma and forests 385Ma. Mammals didn't evolve until 200Ma and our own species, *Homo sapiens*, only 200,000 years ago. So humans have been around for a mere 0.004% of the Earth's history. - [BBC, History of Life]

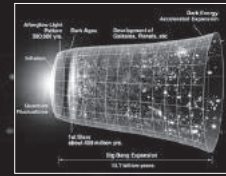
Around the churning arms of a spiral galaxy image, I shall postulate Mount Wilson Observatory spins forth sites of ongoing idea [sic star] formation. The central galactic disk glows concentrated with stars, and reproduced reproductions lead us through ultra-mundane or revelatory information, which may or may not be just that.

A flat, rotating disk containing gas, dust, and a central concentration of stars known as "the bulge" comprise the spiral galaxy. Young stars populate the arms and outshine the central disc; the wobbly neon glowing legacy of Mount Wilson Observatory shines brighter than its steady incandescent core. Wordsworth's child is father to the man. But we are not there yet.

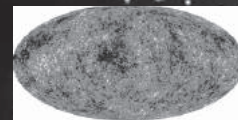
The first encounter shall be the Big Bang as it is theorized, sending us approximately 13.8 billion years ago to a remote past or perhaps a future-present not yet fully perceived. [1] We violently eject in its inconceivable tumult that spews forth that which becomes the matter of the known universe. Massive clouds of primordial elements give way to the matter of stars, galaxies, and eventually, humans. But we are not there, yet again. The next encounter is star formations, nebulae, galaxies, even planets. The burst gradually slows over eons, to dance, float, drift, and coalesce with gravity, lost in a postcoital glow [2] on microwaves of creation, evidence of the ecstasy permeating cosmic time indelibly. 4.5 billions years and we see Earth, the "blue marble" [3]. We are finding our place now, feeling the energy. Are feelings there yet? Let's look again. We move in three jumps to animate life forms, 3.8 billion years, premature perhaps, but worthwhile in the interest of space. Protozoa, bacteria, simple celled life forms, in huge leaps up to 200,000 years ago and we glimpse ourselves emerging for a mere 0.004% of the Earth's history. [4] Welcome. Now we can begin.



[3] "The Blue Marble" is a famous photograph of the Earth taken on December 7, 1972, by the crew of the Apollo 17 spacecraft en route to the Moon at a distance of about 29,000 kilometres (18,000 mi). It shows Africa, Antarctica, and the Arabian Peninsula. [public domain]



[1] Big Bang: Timeline of the metric expansion of space, where space (including hypothetical non-observable portions of the universe) is represented at each time by the circular sections. On the left, the dramatic expansion occurs in the inflationary epoch; and at the center, the expansion accelerates (artist's concept; not to scale). - NASA/WMAP Science Team [public domain]



[2] Nine Year Microwave Sky The detailed, all-sky picture of the infant universe created from nine years of WMAP data. The image reveals 13.77 billion year old temperature fluctuations (shown as color differences) that correspond to the seeds that grew to become the galaxies.

9 year WMAP image of background cosmic radiation (2012) Credit: NASA / WMAP Science Team WMAP # 121238 [public domain]

*Photos by Christina Ondrus, except where noted otherwise.



[7] Image of sun from Mount Wilson Observatory's Snow Solar Telescope.



[8] Solar observing lesson from MWO 150 Solar Tower: the white disc is a live image of the sun, the small silver pellet represents Earth, the tiger-eye marble represents Jupiter, and the card displays an image of the largest sunspot ever observed at Mount Wilson Observatory.



[13] VAR! plate reproduction image presented for educational purposes inside 100-inch Hooker Telescope, of Andromeda Galaxy (Messier 31) which led to his discovery of the first Cepheid variable star in M31, establishing that M31 was a separate galaxy from our own.

So much has happened I can't begin to explain; we can't catch up without bending back in on ourselves. Theories, misunderstandings, an earth-centered universe to a heliocentric model [5], a flat earth to an orb. . . one-time seemingly sensible nonsense recedes in the quivering light of all-time evolving human consciousness. Ancient humans understood the night sky through acute observation. But we must leave it there and leap forward again, racing the sands of time worn from ancient monuments, funneled into an hourglass of earthbound days.

We are zooming in, closer now to a more recent past that swirls around steady atmospheric conditions over a mountain above Los Angeles [6]. A fantastic tale of ingenuity and perseverance used to build the largest telescopes in the world during the Twentieth Century of Western Civilization—to capture images of the sun and stars and other celestial objects and data. [7][8] Glass, steel, rebar, the technology of the emerging railroads used to engineer the most precise equipment to augment the human eye. The dream of completion is to exceed the boundaries of our finite bodies in search of origins and destiny alike.

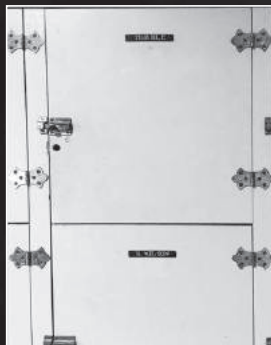
Finally we must pass through the Hooker 100-inch telescope lens, to glimpse ourselves [9][10]. But how are we to get there? We must leap the hurdles of time and space, backwards through the lens [11] to arrive at the present understanding of the past. A 9,000 pound slab of glass tilted to the sky allows a chance to locate ourselves again, nowhere near a galactic center (as Shapely discovered) but off to its side, the outskirts or suburbs as it's playfully called, of our cosmic neighborhood. There we are. Here we are. . . gradually moving with Hubble's measured expansion rate.[12] [13]



[9] MWO 100-inch Hooker Telescope Dome (exterior).



[10] MWO 100-inch Hooker Telescope.



[12] A locker used by Hubble at MWO.



[11] View looking up into the bottom of the glass lens of the 100-inch Hooker Telescope.

ARTISTS

Scott Benzel

Scott Benzel was born in Scottsdale, AZ and lives and works in Los Angeles. His work has been shown or performed at the Los Angeles County Museum of Art, the Museum Of Contemporary Art Los Angeles, LA>ART, Los Angeles, The MAK Center for Art and Architecture, Los Angeles, The Palm Springs Art Museum, and the Contemporary Art Museum St. Louis, and was featured in Made in LA 2012, the first Los Angeles Biennial, at the Hammer Museum, Los Angeles. Benzel has curated shows at the Los Angeles Contemporary Archive, the MAK Center for Art and Architecture (Schindler House), Los Angeles and the Welcome Inn, Eagle Rock, CA, as part of Pacific Standard Time organized by the Getty Museum, among others. scottbenzel.net

Project: *Mathesis and Mathematikoi* is a movement/performance/sound piece to be performed on the rotating interior deck of the dome of the 100" Hooker telescope at Mt. Wilson. The roots of piece are in the landmark astronomical and cosmological work of Edwin Hubble, which took place in the Hooker telescope, the proto-scientific philosophy of the Mathematikoi- an offshoot Pythagorean sect, and the philosophically-inspired dance work of Yvonne Rainer, Simone Forti, and others at the Judson Dance Theater.

Jeff Cain

Jeff Cain is an artist, designer, and curator whose studio, the Shed Research Institute, explores site-specific and interdisciplinary research projects. His work has been featured in the Getty Museum's California Video, Los Angeles County Museum of Art, Los Angeles Contemporary Exhibitions, and many other southern California art spaces, and internationally in the Busan Biannual, Havana Biannual, the Lisbon Architecture Triennale, and the Center for Contemporary Art in Kyiv, Ukraine. He was the Exhibition Designer and Adjunct Media Curator for University of California/Riverside ARTSblock, where he organized *Render: New Construction in Video Art* with Jennifer Frias; Matt Lipp; Horizons; and *Ashe Hartman: Halfway to Vegas*. Cain also organized *Utopia!* at the LA County Fair, which was the first photo exhibition curated through online crowd sourcing, and the radio programming for his project RHIZ Radio, which was a finalist for the Prix Ars Electronica in digital communities. He has received grants from the California Community Foundation, The Center for Cultural Inquiry, the National Endowment of the Arts. Cain is an Assistant Professor of Teaching at the University of Southern California Roski School of Fine Arts. shedresearch.net

Project: *Blindspot* is a video that uses 100 years of sunspot observational drawings from Mt Wilson's 150 Solar Tower with manipulated video footage and animation to speculate the connection of celestial and terrestrial landscapes.

Krysten Cunningham

Krysten Cunningham, (b. 1973) lives and works in Los Angeles, California. She has a Master of Fine Arts in Sculpture from the University of California, Los Angeles (2003) and a Bachelors of Fine Arts from the University of New Mexico, Albuquerque (2000). She has had solo exhibitions at the Crisp-Ellert Art Museum, St Augustine, FL (2016); the Pomona College Museum of Art, Claremont, CA (2013); the Thomas Solomon Gallery, Los Angeles, CA (2010, 2008); Sies + Høke, Düsseldorf, DE (2008); and Ritter/Zamet Gallery, London, UK (2014, 2010, 2006). Her work has been featured in many group exhibitions including "Extending the Line" Idea Space, Colorado Springs (2014); "Craft Tech/Coded Media" at the Boulder Museum of Contemporary Art (2013); "Undone, Making and Unmaking in Contemporary Sculpture" at the Henry Moore Institute, Leeds, UK (2010); "Beyond Measure" at Kettle's Yard, Cambridge, UK (2008); and "THING: New Sculpture from Los Angeles" UCLA Hammer Museum, Los Angeles (2005) among numerous others in the US, Germany, Switzerland and England.

Project: connecting a grove of trees together, suggesting the constellation Pegasus. The project refers to the Astronomers work of calculating large distances and magnitudes of scale that exceed human comprehension. The act of drawing lines between the trees signifies our human desire to understand or capture the world through observation and measurement. The materials are humorous, fun, flexible, and colorful. It pokes fun at a rigid system of linear logic. *Human Loom*: Employing a series of colored spandex bands and the limbs of the body the "Human Loom" activity serves as a therapeutic setting for participants to explore the physicality of prime numbers, the geometrics of the body and how mechanical systems meet social systems. (Think multi-body problem and models of quantum entanglement.)

Erik Frydenborg

Erik Frydenborg received his BFA from the Maryland Institute, College of Art, and his MFA from the University of Southern California. His work has been reviewed in Artforum, Flash Art, and the Los Angeles Times, among other publications. Frydenborg's work recently appeared in the solo exhibitions *An Erik Frydenborg Omnibus* at The Pit II in Glendale and *Nebula Winners* at Andrew Rafacz, Chicago, as well as in Brian Kokoska's Trauma Sauna at ASHES/ASHES, Los Angeles. Frydenborg was also included in recent group exhibitions at Regina Rex and Team Gallery, New York, Rainbow in Spanish and M+B, Los Angeles, Albert Baronian, Brussels, and Shanaynay, Paris. In September 2017, his work will appear in a solo exhibition at The Pit. Frydenborg lives and works in Los Angeles.

www.erikfrydenborg.com
www.the-pit-la.com

Project: *Aquarius Cusp*, 2017. Coated polystyrene, wood, paint, acrylic convex safety mirrors. Dimensions variable. Erik Frydenborg's *Aquarius Cusp* augments the facade of the Astronomical Museum with a pair of oracular statues, flanking the building's doors in the manner of classical sentinels. Recalling both the austerity of votive guardians from ancient Delphi and the ambiguous hybridity of Max Ernst's composite bronzes, Frydenborg's sculptures suggest mythic origins while resisting direct interpretation. At the same time, they riff on vernacular tropes of inelegant 'plop art' common to sculpture in public settings.

Behind the sculptures, a line of convex safety mirrors correspond with an existing mirror centered over the museum's entrance. Loosely evocative of astral bodies in array, these mirrors also serve as a kind of short-range surveillance monitors. Contrasting the surrounding telescopes' skyward gaze, these ocular features stare back at visitors as they move through the building's terrestrial threshold.

Channing Hansen

Born and raised in Los Angeles, Channing Hansen studied at San Francisco Art Institute as part of its New Genres program, working mostly in performance and video. Around 2008, Hansen began developing a fiber-based art practice as a way to further his interest in science and technology. In 2011, Womb-Womb Room, a collaborative installation made with Alexandra Grant based on Faith Wilding's Crocheted Environment (otherwise known as the Womb Room) was presented at Night Gallery, Los Angeles. His work has since been featured in solo exhibitions at Marc Selwyn Fine Art, Beverly Hills, and CRG Gallery, New York, and group exhibitions including Made in LA 2014 at the Hammer Museum, Los Angeles County Museum of Art, and the Stedelijk Museum, Amsterdam, as well as numerous private collections. Hansen is also active as an educator through the Mountain School of Art. Website: www.marcelwynfineart.com/artists/channing-hansen/

Project: *Solar Algorithm*. Channing Hansen's intricately knitted work uses a "score" or pattern generated by a mathematical algorithm derived from GPS gathered while hiking 4/4 trails around Mount Wilson, overlaid with plots of magnetic fields recorded by the Observatory's solar tower, where the work is installed in situ.

Gregory Michael Hernandez

Gregory Michael Hernandez was raised in the Mojave Desert of Southern California, and has lived in Los Angeles since 1995. His visual art is focused on the landscape, incorporating site-specific interventions in the desert and the city. Hernandez is interested in how mediated histories and contemporary constructs shape human perception. The clash of the religious impulse and politics is of particular interest, as these collisions are key to interpreting value systems. His photographic methods have become a tool for mapping perspective and relating the body to place / space. By mathematically translating between two and three-dimensional representations, the work bridges painting, photography, sculpture, architecture, and site-specific installation. After his debut solo exhibition "Rebuilt Homestead" at LAXART in 2010, Hernandez had a solo show at Roberts & Tilton in 2013. "Decalogue Chapel", an architecturally defined sculpture that displayed ten paintings based off his rewriting of the 10 Commandments, also contained a performative element. It was included in the recent invitational "Joshua Treennial", in Joshua Tree, CA. He has received grants from the California Community Foundation and the Rema Hort Mann Foundation. His work is in the permanent collection of MOCA, Los Angeles. His projects are archived online at www.exilechild.com.

Project: "Some religions build great cathedrals or temples, but Judaism constructs the Sabbath as an architecture of time." - Susannah Heschel, daughter of Abraham Joshua Heschel. Visual artist Gregory Michael Hernandez is inspired by 20th century advancements in our expanding knowledge of (and discovered limitations in perceiving) time and space. Through sculpture, painting, and architectural installations among a grove of trees between high powered telescopes, Hernandez will activate the 'space between' through a series of works he calls "Architectures of Time".

Alice Kőnitz

Alice Kőnitz (b. 1970 Essen, Germany) received an MFA from the Kunstakademie in Düsseldorf in 1996 and an MFA from the California Institute for the Arts in Valencia, California, in 1999. Selected exhibitions include the 2008 Whitney Biennial, and the 2014 Made in LA show at the UCLA Hammer Museum where she received the Mohn Award which honors artistic excellence. Recent and upcoming shows include solo exhibitions at Nächst St Stephan (Vienna), Commonwealth and Council(Los Angeles) and the Museum of the City of Mülheim an der Ruhr (Germany). Alice Kőnitz lives and works in Los Angeles.

Project: Alice Kőnitz presents a series of sculptural apparatuses for solar observation and social exchange. Visitors can gaze through a solar tent and natural obsidian lenses positioned throughout the Observatory, and share their experiences.

Karen Lofgren

Karen Lofgren is an LA-based artist working in sculpture, installation, video, sound, and works on paper. The work taps into cultural anxiety, contemporary ritual, and mythology through objects and environments at life scale. Recent solo exhibitions include *Other Relevant Experience* and *Ritual Landscape* at Royale Projects Contemporary Art; *On the River* at VOLUME; *Trajectory Object* c. 2000-2050 with High Desert Test Sites; and *Stabilizers* at Army Center for the Arts, as well as shows at LACE; Pitzer Art Galleries; POST; and Machine Project. Group exhibitions include *Commonwealth & Council*; LACMA; Human Resources; Bank of America; Carter & Citizen; Vancouver Biennale; and OCAD University. Her projects have received support from the Mike Kelley Foundation; the Canada Council for the Arts; Durfee Foundation; the Andy Warhol Foundation for the Visual Arts; The Ranch Projects; and West of Rome Public Art. Further information about the work can be found at www.karenlofgren.net.

Project: *Trace Elements* will be a sculptural installation of small to medium sized objects that reflect the composition of the human body in relation to star elements utilizing materials such as calcium, carbon, sodium, copper, tin, silicone, chlorine, and cobalt.

Margaret Wertheim

Margaret Wertheim is an internationally noted writer, artist and curator whose work focuses on relations between science and the wider cultural landscape. The author of six books, including *The Pearly Gates of Cyberspace* and *Physics on the Fringe*, she has written for the New York Times, Los Angeles Times, The Guardian, Aeon, Cabinet and many others. With her sister Christine, she has established the collaborative practice-based Institute For Figuring, an endeavor devoted to the "poetic and aesthetic dimensions of science and mathematics." Through the IFF, she has created exhibitions for the Hayward Gallery (London), Science Gallery (Dublin), Art Center College of Design (Pasadena), and Mass MoCA (USA). By inviting audiences to play with ideas, the IFF offers a radical interweaving of math, science and art that is at once intellectually rigorous and aesthetically aware.

The Wertheim sister's "Crochet Coral Reef" project is now the largest participatory science-and-art endeavor in the world. It has been shown at the Andy Warhol Museum (Pittsburgh), New York University Abu Dhabi (UAE), the Smithsonian (Washington D.C.), and the Museum of Arts and Design (NY). Through an unlikely conjunction of handicraft and geometry, the Crochet Reef offers a window into the foundations of mathematics while also addressing climate change. Donna Haraway has called the work "palpable, polymorphous, terrifying and inspiring stichery." Wertheim's TED talk on the project has been viewed over a million times and translated into 20 languages. <http://www.theiff.org>

Project: *Making Space at Mount Wilson: An Exploration of Concepts of Space in Mathematics and Cosmology.*

What does it mean to say something has 2 dimensions, or 3? Einstein's general theory of relativity describes our universe as having 4 dimensions, while string theory says we live in a 10 or 11-dimensional space. In modern mathematics and cosmology "space" is a foundational concept, but what do scientists mean by this term? And what are the "dimensions" they speak about here? At Mount Wilson, Hubble discovered that space is expanding, and around black holes space stretches. How can we understand such statements? In this two-part event, science writer and artist Margaret Wertheim will lead a seminar about the history of scientific and mathematical concepts of space, followed by a participatory workshop where participants will explore non-Euclidean geometry by constructing paper models of hyperbolic space.

Session One: Seminar

Here we will discuss the history of Western concepts of space from Dante to string theory, via Descartes, Newton, Einstein and Kaluza-Klein ideas.

Session Two: Workshop

Here we will construct paper models of non-Euclidean spaces.

No prior experience is needed.
All materials will be supplied.
Registration is essential
Workshop size: Max 40 people

Rosha Yaghmai

Rosha Yaghmai is primarily a sculptor experimenting with both found and cast materials. Her work brings together West Coast Conceptualism with a LA slant. The artist uses foreignness and estrangement as a way to open up the possibility of a connection to other temporalities. Rosha Yaghmai lives and works in Los Angeles, California. She received her MFA from CalArts in 2007. Solo and 2 person exhibitions include: Cleopatra's, Brooklyn, NY; Kayne Griffin Corcoran, LA, CA; Weiss Berlin, Berlin; Commonwealth & Council, LA, CA; Tif's Desk, LA/Miami and Thomas Solomon Gallery, LA. www.roshayaghmai.com

Project: Rosha Yaghmai presents sculptures evocative of street lamps and benches, bringing together a West Coast Conceptualism rooted in psychedelic concepts, exploring themes of transformation and alienation.

Artist Edition

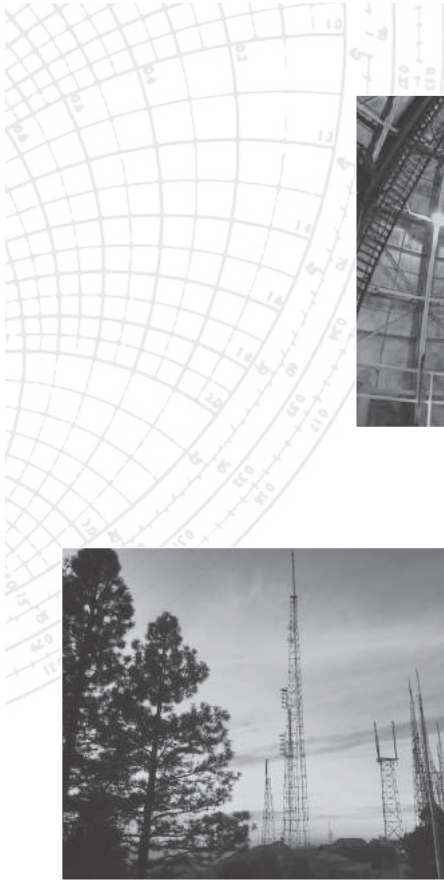
Claire Nereim

Claire Nereim lives and works in Los Angeles. She received her MFA from CalArts in 2011 and her BA from Oberlin. She studied printmaking and typography before turning towards sculpture. In her work she investigates the materiality of language and the relationship between architecture, botany, outer space and the body.

Garden for a Swan

In the Northeast sky at dark, Cygnus the swan is in the vernal astral garden. The foliage is dense and overlapping. The seven mapped plants softly surround the bright bird. An interpretive map of the sky over Los Angeles on the evenings of KNOWLEDGES 2017 and made for the occasion, this letterpress print diagrams the swan among seven new constellations depicting plants. Since 2008, Nereim has been making observational star charts of new constellations, among and anchored by recognizable asterisms. This print relates to an ongoing project that envisions the entire night sky populated by plants.

Letterpress edition of 100. Printed in Los Angeles by Bullhorn Press on 100% cotton paper.



PERFORMERS

Constance Demby is a pioneer in new age music, best known for her album *Novus Magificat: Through the Stargate*, whose 30th Anniversary Edition is forthcoming in June 2017. "Travel on a Beam of Sound to the Heart of the Universe," as she performs her custom designed Sonic Steel Space Bass.

Ernest Gibson is a recording artist known for both his solo work and as a member of the primitive psych group Net Shaker. Gibson's recordings frequently exhibit an otherworldly quality, achieved through self-sampling, tape manipulation, alternate tunings, pitch scaling and various methods of instrument preparation. Releases include *Island Records*, *Pastoral IV*, and *Women I Know*.

Harisant is a yoga instructor and gong performer. He has been teaching kundalini yoga and meditation along with gong sound healing for 20 years. His main instrument, a planet gong (Jupiter), produces a spectrum of bass, overtones, and harmonics. The gong's saturation of sounds helps the meditative listener to both override the intellect and yield the mind to deep mental relaxation.

Matthew David L.A. composer and LEAVING Records label founder Matthew David McQueen is largely known for his experimental production, including releases on Flying Lotus' Brainfeeder label. After nearly a decade of evolution, *Trust the Guide* and *Glide* is at once a powerful statement of identity and a new door into cosmic consciousness.

Odeya Nini is an experimental vocalist and contemporary composer. Her solo vocal work extends the dimension and expression of the voice and body, creating a sonic and physical panorama of silence to noise and tenderness to grandeur. Her debut album *Vougheauxyce (Voice)* was released on pMENTUM.

Tara Jane O'Neil is a multi-instrumentalist, composer, and artist who creates melodic and experimental music. She has released seven albums internationally, was a founding member of Rodan, and has collaborated extensively with other musicians. Her new self-titled album was released by Gnomonsong in April 2017.

Anna Luisa Petrisko is an artist working in music, video, dance, and performance. Since 2008, she has performed music and art under the moniker JEEPNEYS, which now operates as a platform for artistic collaboration and research. Named after the iconic converted WWII army jeeps of the Philippines, JEEPNEYS' work explores a multitude of experience of time, space, and self. Whether it is experimental opera or multimedia installation, JEEPNEYS' work is an otherworldly spectacle that explores the space where future and ancient meet, invested as much in the sacred as in technological speculation. JEEPNEYS' trademark bodysuits are re-indigenized alien skin, referencing the pre-colonial tattooing practices of Pacific Ocean Peoples. With synthesized sounds, intuitive movement, and inter-dimensional imagery, JEEPNEYS creates fresh mythological landscapes.

Sun Araw, a solo project of Cameron Stallones, blossomed out of the experimental psychedelic rock collective Magic Lantern, as an attempted geosynchronous orbit with the Eternal Now: oblique six-dimensional transmissions from changeless environs. Beginning with *The Phynx*, releases span from psychedelic drone to melted afrobeat, from warped dub to minimalism.

White Magic is an artist, vocalist, pianist, percussionist, and composer Mira Billotte. White Magic has released numerous recordings with Drag City, including *Through the Sun Door*, *Dat Rosa Mel Apibus*, and *Dark Stars*, and most recently, *I'm Hiding My Nightingale* on LEAVING Records.

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Cynthia Hunt at Carnegie Observatories.

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