

Los Angeles Filmforum presents  
**Experimentations: Imag(in)ing Knowledge in Film**  
Programs 12 & 19  
Sunday, February 23, 2025  
At 2220 Arts + Archives

Los Angeles Filmforum is the city's longest running organization dedicated to weekly screenings of experimental film, documentaries, video art, and experimental animation. 2025 is our 50th year. [www.lafilmforum.org](http://www.lafilmforum.org)

*Experimentations: Imag(in)ing Knowledge in Film* is Filmforum's expansive film series and upcoming publication that investigates the ways that experimental and scientific films produce and question the visualization of the world. Combining artist films utilizing scientific imagery, science and natural history films, and films of indigenous and traditional knowledge, the series examines how science, nature, and technology films shape our understanding of humans, nature, gender, knowledge, and progress. The multi-venue public screening series presents analog and digital time-based media incorporating diverse scientific and experimental film traditions from across the globe. The series will include eighteen screenings between September 2024 and February 2025, with films and digital works from 1874 to today from around the world, multiple guests, panels and wonderful collaborations that will reveal the possibilities and circumstances of cinema in this realm.

*Experimentations: Imag(in)ing Knowledge in Film* is among more than 70 exhibitions and programs presented as part of PST ART. Returning in September 2024 with its latest edition, PST ART: Art & Science Collide, this landmark regional event explores the intersections of art and science, both past and present. PST ART is presented by Getty. For more information about PST ART: Art & Science Collide, please visit: [pst.art](http://pst.art).

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DEPARTMENT OF CULTURAL AFFAIRS  
City of Los Angeles

**Los Angeles Filmforum presents**

***Experimentations: Imag(in)ing Knowledge in Film, Program 12***

**Images of Broken Light: Indexicality in Astronomy II**

**Sunday February 23, 2025, 3:00pm**

**At 2220 Arts + Archives, 2220 Beverly Blvd., Los Angeles CA 90057**

**The program will be followed by a conversation moderated by Norman Klein, with Eames Demetrios in person and curator Jane de Almeida and filmmaker James Tralie by Zoom  
A free dinner will be available after this program, before the 7 pm program.**

This showcase presents a series of films related to astronomy that examine how scientific knowledge depends on traces left directly by natural phenomena themselves - so-called indexical images. Before being ideas, scientific theories are themselves constituted by image making. With computer-generated imagery, it has become increasingly difficult to recognize the indexicality of the film image, mainly because of simulation. In the case of scientific films, this issue is even more delicate, as the image requires a direct recognition of reality, under penalty of not constituting scientific evidence. With increasingly aestheticized images, scientific images in turn are captured from distant spaces, through sophisticated hybrid technologies, very different from the optical array images of telescopes. This screening intends to present an overview of films considered scientific, with educational intentions on astronomy since before the invention of cinema, so that the most diverse film techniques used by filmmakers and scientists in different eras can be appreciated.

The selection begins with *Passage of Venus* (1874), when astronomer Jules Janssen first used sequential photography to record Venus crossing the sun's surface. Declaring the photographs were "drawn by the sun, himself", Janssen persuaded the astronomical community for replacing hand-made observational drawings with this new scientific instrument. Since then, the relationship between science and image representation has been marked by an ongoing tension over the role of instruments - from cameras to computers - as tools of precision measurement and observation. In the digital age, the concepts of "imaging," animation, and simulation introduce new potentials and complexities. Contemporary instruments - radio telescopes and infrared detectors - capture data beyond visible light, demanding new visualization methods and interpretation. This transformation invites us to rethink the nature of scientific evidence and the role of imaging in the construction of astronomical knowledge, at a time when the boundary between recording and simulation becomes increasingly blurred.

In this screening, some of the films show how the images directly captured from nature are used in cinematic fashion, and also for educational purposes. Bernard Lyot captured unprecedented images of the sun using the coronagraph he developed, creating a film from this footage. *Flammes du Soleil*, created later to honor Lyot, presents his solar footage as a choreographed spectacle, anticipating today's computer-simulated astronomical images stored in observatory and laboratory databases. This approach to astronomical visualization continues with *Cosmic Cycles: A Space Symphony* from NASA's Goddard Space Flight Center, which merges diverse astronomical images into a journey through space, exploring the universe as a musical symphony. *Planetary Fantasia* is scored by the National Philharmonic with the composition by Henry Dehlinger.

Equally remarkable but educational in purpose, the Cosmos TV series (1980-81), hosted by Carl Sagan, cinematically featured Voyager spacecraft imagery alongside the first computer images. Jim Blinn manipulated Voyager's data and photographs to create what became known as a "computer simulation," showcased in the Cosmos episode *The Persistence of Memory*. Blinn's groundbreaking work featured a computer-rendered Voyager spacecraft orbiting Jupiter, creating a fly-by simulation that pioneered new computer modeling techniques.

The next two films demonstrate speculative image techniques that foresaw future discoveries and instruments. Pavel Klushantsev's *Road to the Stars*, a Soviet science film, anticipated later achievements: humanity's first steps on lunar soil, crewed spaceflight, and scenes that would influence (or be copied by) Kubrick's *2001: A Space Odyssey*. Combining science education and speculation, the film provides historical context through the work of rocketry pioneers: Konstantin Tsiolkovsky, Max Valier, and Robert Goddard. During the film's editing, Sputnik - Earth's first artificial satellite - was launched, marking a triumph for the Soviet Union. Government officials demanded additional scenes be included before the film aired in November 1957, one month after Sputnik's launch. For 92 days, Sputnik broadcast its iconic "beep...beep...beep" radio signals worldwide. Though seen as a geopolitical space toy, it launched a new era of space exploration. Sputnik 2 and 3 established two key paths: human missions (beginning with Laika the dog) and robotic observation.

*Powers of Ten*, directed by Ray and Charles Eames, used cleverly layered photographs to simulate continuous zooming in and out from human scale. The film shifts from traditional central perspective to a logic of scalability - moving between telescopic and microscopic views in powers of 10, foreshadowing today's Google Earth visualization approach. The film anticipates computerized ways of seeing images as a scopic field - understanding the world not through opposites or central perspective, but through scaling between global and local, micro and macro dimensions.

The screening concludes with Tom Bridgman's exquisite 2012 Venus transit visualizations for NASA/Goddard's Scientific Visualization Studio. These pieces stand in counterpoint to Janssen's documentation of the 1874-1888 transit cycle, creating a dialogue between historical and contemporary imaging tools. The next Venus transit awaits in 2117.

**Curated by Jane de Almeida, Adam Hyman, Jheanelle Brown.**

**Jane de Almeida** is an interdisciplinary researcher working at the intersection of arts, film, and new media, with a focus on subjectivity and perception. Her international academic career includes positions as Visiting Scholar in the Department of Philosophy at Boston College, Visiting Fellow in the Department of Architecture and History of Art at Harvard University, and guest researcher at MediaLabMadrid. She further expanded her research as a Visiting Professor in the Visual Arts Department at the University of California, San Diego, where she also served as artist-in-residence at the Arthur C. Clarke Center for Human Imagination, developing the project *Loga: Mars Projections*. Currently, de Almeida is a professor in the Arts Department at the Catholic University of São Paulo, Brazil, while coordinating the Laboratory of Scientific Image (LIC) at the State University of Campinas (UNICAMP). Her curatorial work spans exhibitions including "Harun Farocki: Programming the Visible" at Paço das Artes, "Off the Radar" at the Visual Arts Gallery at UC San Diego, "Ulla, Ulla, Martians, Intergalactics and Aliens" at Casanova, "Black Zero: Aldo Tambellini" at Casanova and Museum of Modern Art (MAM) of São Paulo, and "Quantum Art" at FILE. She also curated the exhibition "Ordering and Vertigo," which was showcased at the Cultural Center Bank of Brazil (CCBB) across multiple locations including Rio de Janeiro, Brasília, and São Paulo.

**Eames Demetrios** works in the areas of design, art, filmmaking and storytelling. In the design world, Demetrios is probably best known as director of the Eames Office, taking care of the legacy of designers Charles and Ray Eames for almost three decades. In this capacity, and working with his siblings, he has organized and curated numerous exhibitions, stewarded the re-editions of the Eames Furniture with Herman Miller and Vitra, and created an interactive version of the classic Eames film *Powers of Ten*. In addition, Demetrios is Chairman of the Board of the Eames Foundation, which takes care of the remarkable Eames House.

Demetrios is a writer as well: he's the author or co-author of a dozen books and contributor to many more. His current large scale art work is his parallel universe, Kcymaerxthaere, a global work of multivalent storytelling, telling stories through the physicality of the world. For this project he has, over the past 20 years, installed 157 public installation in 30 countries on 6 continents in 31 languages. Demetrios describes it as a global sculpture made out of narrative. Demetrios continues to do some filmmaking, having made over 70 films (mostly short documentaries, but some fiction features and animation)--many on the Eames work, as well as exploring topics ranging from the Modern Maya of southern Mexico to Frank Gehry, from homelessness to legendary winemaker Peter Gago.

**James Tralie** is a TV/film producer, animator, and live TV host at NASA. He works at the intersection of science and art to create dreamy, otherworldly scenes, educational explainer videos, documentary productions, and immersive content for all of NASA's social channels and for television. His latest productions have aired on PBS, Delta Airlines in-flight Entertainment, Hulu, and at film festivals around the world. He is one of the top digital artists in the world and has exhibited worldwide including in Times Square New York, on the Sphere in Las Vegas, at Shibuya Crossing in Japan, in Abu Dhabi, Art Basel Miami, and in Montreal, Canada. He is a member of the Television Academy.

**Norman M. Klein** is a critic, urban and media historian and novelist. His books include: *The History of Forgetting: Los Angeles and the Erasure of Memory*; *Seven Minutes: The Life and Death of the American Animated Cartoon*; *The Vatican to Vegas: The History of Special Effects*; *Freud in Coney Island and Other Tales*; *Bleeding Through: Layers of Los Angeles, 1920-86*; *The Imaginary 20th Century* (also an online site); *Tales of the Floating Class: Essays and Fictions in Globalization and NeoFeudalism*. Both *The Imaginary 20th Century* and *Bleeding Through* were pioneering "database" novels—and docufables-- that now have expanded new editions: *Bleeding Through* and *Vatican to Vegas* available online as well (from Transcript). He also has published numerous essays across the arts, architecture, cultural history; along with museum and gallery exhibitions.

Klein's work centers on the relationship between collective memory distortion and power, especially in cities, entertainment culture, cinema and animation, within the context of national politics-- and the scientific "imaginary." He investigates histories of forgetting, ironic scripted spaces and social imaginaries. In his docufables, he emphasizes how facts dissolve into fiction in our daily life. is now completing *Archaeologies of the Present: The Dismantling of the American Psyche*, on the emergent feudal condition brought on by global shocks since 1973. As Klein often points out in lectures, progress keeps running off the rails, but we must avoid any form of nihilism, now more than ever.

#### Screening:

##### ***Passage artificiel de Vénus sur le Soleil***

Pierre Jules César Janssen, France/Japan, 1874, digital, b/w, silent, 0:30

##### ***Flammes du soleil***

By Bernard Lyot, 1935 with added commentary by Paul Couderc, 1957, b&w, sound, 11:00

Film made in memory of Bernard Lyot, astronomer, member of the Academy of Sciences and inventor of the coronagraph.

Paul Couderc, astronomer at the Paris Observatory, comments on the images that Bernard Lyot made in 1935. Lyot invented the coronagraph which allowed filming of the sun, the solar corona, the protuberances and the columns of gas on the surface of the sun.

### ***Road to the Stars (Дорога к звездам)***

Pavel Klushantsev, USSR, 1957, digital transfer, color, sound, 25 min. excerpt

This film consists of three parts. The first dramatizes the life of the founder of Soviet astronautics, Konstantin Tsiolkovsky; the second describes the development of rocket technology; and the third visualizes the future with enactments of the first manned spaceflight, spacewalk, space station construction and humans on the moon. We're going to skip the sections on Tsiolkovsky and rockets, and look to the future.

### ***Powers of Ten***

Charles and Ray Eames, USA, 1977, digital, color, sound, 9:00

*Powers of Ten and the Relative Size of Things in the Universe* (1977) is a film created by the Eames Office investigating the idea of an exponential series. The film illustrates scale and the significance of adding a zero to a number. It begins with a scene on Earth: a man and woman picnicking in a park bordering Lake Michigan in Chicago. The journey unfolds as the camera steadily moves away from the couple, reaching the edge of the known universe. The camera reverses its movement back to Earth's park scene, going further to reach the atomic level of the hand of the napping man on the picnic blanket. Original music score by Elmer Bernstein.

### ***Cosmos: A Personal Voyage***

Carl Sagan/Ann Druryan, USA, 1980, digital, color, sound, 10 min. excerpt

Excerpt from Episode 11 "Persistence of Memory"

### ***Cosmic Cycles 5: Planetary Fantasia***

James Tralie, Wade Sisler, and Henry Dehlinger, USA, 2023, color, sound, 12:36,

Courtesy NASA's Goddard Space Flight Center

Producers: James Tralie (ADNET Systems, Inc.), Wade Sisler (NASA/GSFC)

Editor: James Tralie

Music composer: Henry Dehlinger (National Philharmonic)

Music credit: "Planetary Fantasia" from *Cosmic Cycles: A Space Symphony* by Henry Dehlinger. Courtesy of the composer.

Earth's siblings, the other planets were created at the birth of the solar system. They give us a glimpse of the variety possible in the universe and how rare Earth is. As we explore these other worlds, we fuel our adventurous spirit and discover new wonders at every turn: riverbeds on Mars, volcanoes on Jupiter's moon Io, auroras on Saturn, and sulfuric-acid clouds on Venus.

### **Venus Transit 2012 Compositing Visuals**

Tom Bridgman, 2012, digital, color, silent, 3 min.

Visualizations by: Tom Bridgman / NASA

(2nd, 3rd, and 5th views)

A high-cadence view of Venus Transit in HMI. 1:06

A high-cadence view of Venus Transit in AIA at 304 angstroms 37 seconds

Composited Full Disk frames, constructed by compositing the AIA 171 high-cadence inset with the low cadence full-resolution disk. 38 seconds

**Los Angeles Filmforum presents**  
***Experimentations: Imag(in)ing Knowledge in Film, Program 19***  
***The Universe in a Grain of Sand***  
**Sunday, February 23, 2025, 7:00 pm**  
**At 2220 Arts + Archives, 2220 Beverly Blvd., Los Angeles CA 90057**

**Los Angeles premieres!**  
**Conversation following the screening with filmmakers Mark Levinson and Kate Balsley in person, moderated by Anuradha Vikram**

A meditation by the award-winning filmmaker/physicist Mark Levinson (*Particle Fever*) on how we make sense of the world. Juxtaposing scientific developments with the works of artists, the visually rich film explores how both scientists and artists use their understanding of nature to create tools and representations to probe the deepest mysteries of the universe. This art-film crossed with creative documentary takes us on a journey from experimental film to the frontiers of quantum computing. Preceded by a few of the short experimental films incorporated in the feature by Levinson as the visual corollaries to points being made in the film. We're delighted that one of these makers, Kate Balsley, will join us in person with two of her beautiful films. Curated by Adam Hyman

**Mark Levinson** is the award-winning director of the documentary feature *Particle Fever* about the discovery of the Higgs boson. Before embarking on a film career, he earned a PhD in particle physics from UC Berkeley. In the film world he was a specialist in the post-production writing and recording of dialogue, working on over 40 feature films including *The English Patient*, *The Talented Mr. Ripley*, *Johnny Mnemonic* and *The Social Network*. He directed the fiction film *Prisoner of Time* about two former Russian dissident artists after the collapse of the Soviet Union. Most recently he directed *The Bit Player* about Claude Shannon, "The Father of Information Theory." Mark won the inaugural Stephen Hawking Medal for Science Communication.

**Kate Balsley** is a video artist, animator, screenwriter, and educator based in Atlanta, Georgia. She has a BFA in film studies and production from the University of Wisconsin-Milwaukee, an MFA in mass communication and media arts from Southern Illinois University-Carbondale, and is currently earning an MA in digital animation from Kennesaw State University. Her work includes narrative screenplays, experimental videos, and children's films. She does not limit herself to a single subject or style, and her work has explored topics such as space exploration, sexual harassment, and our engagement with the natural world. She has been screened in venues such as the Museum of the Moving Image, the Anthology Film Archives, the REDCAT center, and the Museu de Arte Moderna in Rio de Janeiro. She strongly values education and prioritizes teaching above all else. She has taught film studies and production at Southern Illinois

University-Carbondale, Facets Multimedia, Chicago Filmmakers, Lake Forest College, the University of Wisconsin-Milwaukee, and is currently an Associate Professor of Film at Georgia Gwinnett College.

**Anuradha Vikram** is a writer, curator, and educator born in New York and based in Los Angeles. They are co-curator of the 2024 Oregon Contemporary Artists' Biennial and guest curator of the Getty PST Art exhibition *Atmosphere of Sound: Sonic Art in Times of Climate Disruption* (2024–25) at UCLA Art Sci Center. Recent curatorial projects include Jaishri Abichandani: Flower-Headed Children at Craft Contemporary, Los Angeles (2022), *Swept Away: Love Letter to a Surrogate* with Warren Neidich, Renée Petropoulos, and Christina Strassfield at Guild Hall, East Hampton Main Beach, New York (2022) and 18th Street Arts Center, Santa Monica State Beach, California (2023), and eX-aMEN-ing Masculinities with LA Freewaves at Los Angeles State Historic Park in 2022.

Vikram's book *Decolonizing Culture* (Sming Sming Books, 2017) helped initiate a global movement to decolonize arts institutions and monuments. Their latest book is *Use Me At Your Own Risk: Visions from the Darkest Timeline* (X Artists' Books, 2023), using speculative fiction to address current and future social conditions from a techno-critical point of view. They are a contributor to art periodicals including *Art in America*, *The Brooklyn Rail* and *Los Angeles Review of Books*, and publications from Paper Monument, Archive Books, Heyday Press, Routledge, Wiley, and Oxford University Press. Vikram is faculty at UCLA School of the Arts and Architecture. They hold an MA in Curatorial Practice from California College of the Arts and a BS in Studio Art from NYU.

### **Screening:**

#### **Cosmos Obscura**

By Kate Balsley; Music by Irina Escalante Chernova  
2018, digital, b&w, sound, 4:00

This video contains flashing images.

In *Cosmos Obscura*, the universe is at once known and unknowable. New patterns, rhythms and metaphors are born from old ones, and familiar celestial bodies are refracted into strange and unusual forms.

The visuals were created from photographs taken from the Voyager II spacecraft. Photographs of the planets and their moons were abstracted and animated in order to create various patterns, rhythms and images. Other images were inspired by astronomical charts and diagrams, and were created through Adobe Photoshop and After Effects.

The musical work was originally created for 8 channels and subsequently adapted to the stereo version. The music focuses on the work from different backgrounds with the noises of nature and those which have an electronic source. Different techniques of electronic experimentation are used such as subtractive synthesis for filtering and modeling of the white noise, as well as granular synthesis, additive synthesis, phase vocoder; in addition to effects with some filters. Technique: Sound Forge 4.5, Ableton Live, Keyboard DX-7 and Soprano voice.

## **Microspectrum**

By Kate Balsley

2016, digital, color, sound, 1:30

A surreal journey through the natural world. Leaves, flowers and other organic materials are abstracted and exist as shapes, forms, colors and textures. Nature is at once strange and beautiful. Microspectrum invites the viewer to reflect upon its complexities. Winner of the Jury Award at the Black Maria Film and Video Festival.

## **The Universe in a Grain of Sand**

By Mark Levinson

USA, 2024, digital color, sound, 73 min. Los Angeles premiere!

How do we make sense of the world around us? Our understanding of nature is shaped by the tools we create to observe it. Both scientists and artists have pushed the frontiers of understanding through an astounding array of human ingenuity and innovation: from glassmaking to semiconductors; from Leibniz's 17th century binary systems to the art of M.C. Escher; from the diverse boat-building techniques of First Nations peoples to the latest advances in computer generated art and quantum computing. Featuring a dazzling integration of artwork and experimental cinema – Picasso to Hilma af Klint to Stan Brakhage – interwoven with scientists striving to understand the deepest mysteries of nature, the award-winning director Mark Levinson (Particle Fever) celebrates the transcendent power of the imagination to make sense of the universe.

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Los Angeles Filmforum screenings are supported by the Los Angeles County Board of Supervisors through the Los Angeles County Department of Arts & Culture, the Department of Cultural Affairs, City of Los Angeles. We also depend on our members, ticket buyers, and individual donors.

Coming soon:

March 7, 7:30 pm - Experimentations: Imag(in)ing Knowledge in Film: Our Heavenly Bodies, with live music by Dave Harrington & Friends, at Brain Dead (Rescheduled)

March 9, 1:00 pm - Experimentations: Imag(in)ing Knowledge in Film: Natural History in Experimental and Artist Animation (Rescheduled)

March 9, 7:30 pm - Then<·>Now: Taiwan Experimental Film and Video Arts, Part 2, at 2220 Arts + Archives

March 16, 3:30 pm and 7:00 pm - Nothing Bad is Ever Going to Happen Again: The Films of Victoria Vincent

Memberships available, \$40 Student \$75 Individual, \$125 Dual, or \$225 Silver Nitrate

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