Image from 20 Hz, one of four works by British-based media artists and Artists-in-Residence Semiconductor on exhibit at the Exploratorium’s opening.

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Exploratorium Opens at Pier 15 with Vibrant Arts Program and New Center for Art & Inquiry

Builds on Interdisciplinary Arts Legacy with its Move to a New Home

When physicist and educator Frank Oppenheimer founded the Exploratorium in 1969, he envisioned a hybrid between a laboratory and a public museum. The Exploratorium’s roots lie in an interdisciplinary approach to understanding the world, and from the very beginning artists have played a vital role in shaping the museum’s public offerings and learning methodologies.

The Exploratorium will re-open its doors at Pier 15 on San Francisco’s downtown waterfront on April 17, 2013, with expanded work in the arts and the new Center for Art & Inquiry directed by curator Marina McDougall. This new programmatic focus on the arts is made possible by a generous grant from Sakurako and William Fisher.

“I seized the opportunity to have a meaningful impact on the arts, the Exploratorium, and the Bay Area arts community,” says Bill Fisher. “It is a privilege to take the lead in inspiring the community to see interdisciplinary artwork—not to mention the Exploratorium itself and how it reveals how the world works—in new ways.”

The Center for Art & Inquiry will lead the Exploratorium’s arts strategy and direction. Working with program directors from across the museum as well as a council of national advisors, the Center oversees the museum’s long running Artist-in-Residence Program, hosts research fellows, and initiates special projects to advance work at the intersection of art and interdisciplinary learning.

“Art is a way of investigating the world,” explains McDougall, “and we believe in the importance of art in learning.”

At Pier 15, the Exploratorium will debut new programs, projects and exhibition spaces. With expansive outdoor space, state-of-the-art facilities, and wide-ranging themes of investigation, the Exploratorium’s new home will allow for great possibilities for artistic
The Center for Art & Inquiry, will oversee a communications program to capture the innovations, approaches, and results of the Exploratorium’s work in the arts:

- **Over the Water**, an annual program of rotating, large-scale temporary works for the public realm at the Piers
- **Artist-in-Residence Program**, the Exploratorium’s hallmark, groundbreaking, process-oriented, cross-pollinating program for both emerging and mid-career artists to develop new projects
- **Cinema Arts Program**, soon celebrating its 30th anniversary this adventurous program presents an incredible mixed genre program in the Exploratorium’s new Forum equipped with a state of the art Constellation acoustic system by Meyer Sound
- **Black Box**, an 800 square foot gallery space with controlled light and sound for media installations and special exhibitions
- **Ways of Knowing** conversation series, a dialogue on the creative process featuring leading thinkers and doers from across many disciplines including the arts
- **Artist Collaborators**, artists contribute to our ongoing research and development in key initiatives. Current themes include: human social behavior, physics and perception, ecologies of place, living systems, making as thinking
- **Commissioned Works**, as well as loaned artworks, from a vast array of artists animate the public offerings of the Exploratorium

### NEW ARTS PROJECTS
More than 40 new art projects will be on view at opening. These projects take many forms from large-scale immersive installations to site-specific interventions to soon-to-be classic exhibits. Works include a large-scale fog environment, a fold-out guide to the atmosphere, a sidewalk grate that sonically comes alive at night, a giant Douglas Fir tree tipped on its side, and a library on Bay history. These projects have largely been developed by artists working closely with Exploratorium staff as collaborators and Artists-in-Residence. See the full list of projects here.

### ARTS PHILOSOPHY
The Exploratorium views art as integral to learning. Inquiry, the learning approach espoused by philosopher and educator John Dewey, animated Oppenheimer’s educational vision for the Exploratorium.

In 2011 the Exploratorium convened an international conference entitled *Art as a Way of Knowing* (made possible by a grant from the National Science Foundation) to better understand the role of aesthetic inquiry in public interdisciplinary learning environments. As an outcome of the project, the Exploratorium has renewed its conviction to advocate for the importance of art as an essential aspect of learning.

### BRIEF HISTORY
The Exploratorium first opened in 1969 with *Cybernetic Serendipity*, the seminal...
exhibition of art, science, and technology curated by Jasia Reichardt for the Institute of Contemporary Art in London. Soon after, in 1974, the creation of an artist-in-residence program made possible dialogue and collaboration between artists and other interdisciplinary thinkers such as scientists, engineers, educators and inventors. By the late 1970’s the Exploratorium had established itself as the home for a burgeoning counter-cultural art scene.

Over the last 44 years the Exploratorium has presented the work of hundreds of artists and cultivated a unique working environment for artists interested in cross-disciplinary investigations and hybrid approaches.

**Marina McDougall Bio**
Marina McDougall, Director, Exploratorium Center for Art & Inquiry is a curator working at the intersection of art, science, nature and culture. Marina co-founded the Studio for Urban Projects and was the first Curator of Art and Design at the CCA Wattis Institute for Contemporary Art. She has been visiting curator at the MIT Media Lab, the Museum of Jurassic Technology, the California Academy of Sciences, and the Oakland Museum of California. Marina has 20 years experience organizing exhibitions and public programs, and started her career as a curator in the Exploratorium Cinema Arts Program. She teaches in the curatorial practice program at CCA.

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Exploratorium Opens at Pier 15 with Three Dynamic New Outdoor Artworks

Works debut on Exploratorium’s opening day, April 17, 2013

When the Exploratorium opens at its new home on Pier 15—at the edge of the city and the Bay—it will harness the dynamics of its marine and urban environment. The Exploratorium presents three major environmental artworks that play off the architecture and the natural elements inherent at the Exploratorium’s new site—works that highlight fog, wind and Pier 15’s dynamic location at the edge of both the city and Bay. These inaugural works, which transform the Exploratorium’s new site into a dramatic stage for contemporary art, include the first-ever fog sculpture in San Francisco by Japanese interdisciplinary artist Fujiko Nakaya—known internationally for her ephemeral works of fog. In addition, an arresting, large scale Aeolian Harp by the San Francisco-based artist Doug Hollis straddles a wind tunnel created by Piers 15 and 17, and “plays” the drafts at the opening to San Francisco Bay. The sounds produced by the wind blowing across the Harp’s choir of strings are transmitted mechano-acoustically to speakers. Daylay a light and sound installation emanating from an opening in the pier above the water, by the LA-based visual arts/performance duo Lucky Dragons, will combine visual and sonic presence with public performance elements. All of these works exist at the intersection of the natural world and the urban. They combine the forces of nature and technology in the outdoors and on a grand scale, suggesting the Exploratorium’s forty plus year commitment to science, the arts, a sense of wonder, and looking at the world in a new way.

Nakaya’s Fog Bridge—ephemeral and other-worldly—magically envelops a 150 foot long pedestrian bridge, which crosses the open bay between Piers 15 and 17. One thousand high-pressure nozzles lining the bridge will create an immersive environment that enshrouds participants in mist. The work will be lit at night, to stunning effect.
Although Nakaya’s fog environments have been presented around the world, this is her first project in the San Francisco Bay Area, a region famous for its dramatic fog.

Exploratorium staff Marina McDougall, Shawn Lani and Thomas Rockwell worked with guest curator Henry Urbach to select Nakaya for the first incarnation of Over the Water, a new annual art installation initiative. Urbach is the Director of the Philip Johnson Glass House in New Canaan, CT and is formerly the Head Curator of Architecture and Design at SFMOMA. Fujiko Nakaya’s work of fog will be on view for six months, through October 2013.

Doug Hollis’s Aeolian Harp straddles a wind tunnel created by Piers 15 and 17 on the Exploratorium’s new site, responding to the delicate zephyrs and howling gusts blowing in from San Francisco Bay and acoustically reflecting the forces acting on the edge of the city and the bay. This wind activated sonic work plays the dynamics of the site. The sounds produced by the wind blowing across the Harp’s choir of strings are transmitted mechano-acoustically to speakers. The harp is the culmination of a series of investigations into the nature of resonating strings and the ways in which this resonance can be transmitted and amplified though non-electronic means. It will be on permanent view.

An early version of Doug Hollis large-scale wind harp was mounted on the roof of the Exploratorium’s original home in 1976, when as an artist-in-residence, working with Frank Oppenheimer, the Exploratorium founder and noted physicist and educator, Hollis set on the path of developing a rapport with sound sculptures and landscape that has persisted throughout his career.

Lucky Dragons’ DAYLAY is a light and sound installation emanating from an opening the pier above the water. Once the sun sets, the grate will come alive with a programmed light array and a delayed audio recording of what it sounded like exactly 12 hours earlier in that spot. Swapping day for night, DAYLAY plays with our preconceptions of sonic space and illustrates the dramatic contrast between day and night along the Embarcadero. The work is the first in a suite of related nocturnal performances, events, and interventions by Lucky Dragons to take place in summer and fall 2013.

The work of Lucky Dragons comes out of a long term engagement with the Center for Art and Inquiry and the Outdoor Exploratorium teams. Lucky Dragons’ work is both high and low tech, collaborative, and transcends single genres. At the heart of it all is playing together, building up social collectivities, re-engaging the wonder and impossibility of technological presence, and the creation of new and unforeseen experiences.

About the Artists

Fujiko Nakaya
Japanese fog artist Fujiko Nakaya is the daughter of physicist and science essayist Ukichiro Nakaya, renowned for his work in glaciology and snow crystal photography. Like her father, Ms. Nakaya’s lifelong artistic investigation engages the element of water. Working as part of the Exploratorium
Pier 15
San Francisco, CA 94111
415.528.4444 telephone
www.exploratorium.edu
legendary group, Experiments in Art and Technology (E.A.T.) in 1970 she enshrouded the Pepsi Pavilion at the Osaka Expo in vaporous fog, becoming the first artist to create a sculptural fog environment.

Since that first project Nakaya has created fog gardens, fog falls and fog geysers all over the world. Her permanent fog landscapes can be experienced at the Nakaya Ukichoro Museum of Snow and Ice in Ishikawa, Japan; the Australian National Gallery in Canberra; and the Jardin de L'Eau, in the Parc de la Villette, Paris. She recently created a fog sculpture for the Guggenheim Museum in Bilbao and consulted with architects Diller Scofidio + Renfro on the Blur Building for the Swiss Expo in 2002 on Lake Neuchatel. Nakaya has also collaborated with such artists as Trisha Brown, David Tudor and Exploratorium advisory board member Bill Viola, to develop fog performances and stage sets.

**Doug Hollis**

In the early ’70’s, Doug Hollis began working with natural phenomena and searching for new ways to talk about landscape and the forces that are constantly affecting it. This search ultimately led him to his current work with wind- and water-activated sound structures, and to the specific, environmental dynamics of sites. He has taught at Harvard University, Berkeley, UC San Diego, and the University of Virginia. Recent permanent installations include WIND ENSEMBLE, Port of Los Angeles, LA, CA; STARSCAPE, New Federal Office Building, Oklahoma City, OK; MOUNTAIN MIRAGE, New Denver Airport, Denver, CO; Memorial Union North Courtyard University of California, Davis, CA (in Collaboration with Hargreaves Associates LA and artist, Anna Valentina Murch).

**Lucky Dragons**

Lucky Dragons’ Luke Fischbeck and Sarah Rara have presented interactive performances and installations in a wide variety of contexts—including MOCA Los Angeles, Smithsonian's Hirshorn Museum and Sculpture Garden, the Whitney Museum of American Art (as part of the 2008 Whitney Biennial), The Kitchen and PS1 in New York, the Walker Art Center in Minneapolis, REDCAT and LACMA in Los Angeles, Frankfurt's Schirn Kunsthalle, ICA London, ICA Philadelphia, and the Centre Georges Pompidou in Paris. Lucky Dragons is in residence at the Exploratorium through Spring 2014.

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Exploratorium Expands Pioneering Collaborations Between Artists and Scientists During Inaugural Year at Pier 15, and for Museum’s Future

An Overview of Artworks in Every Gallery

Image from *The Shaping Grows* by Semiconductor

When the Exploratorium re-opens its doors at Pier 15 on the San Francisco downtown waterfront, the museum will debut scores of new art projects both inside and outside the building. Expansive outdoor space, state-of-the-art facilities, and wide-ranging themes of investigation allow for great possibilities in the arts.

More than 40 new art projects will be on view at opening. These projects take many forms from large-scale immersive installations to site-specific interventions to soon-to-be classic exhibits. Works include a large scale fog environment, a fold-out guide to the atmosphere, a giant circular hole over the water that sonically comes alive at night, a giant Douglas Fir tree tipped on its side, and a Bay history library. These projects have largely been developed by artists working closely with Exploratorium staff as collaborators and Artists-in-Residence.

**CENTER FOR ART & INQUIRY**

The newly established [Center for Art & Inquiry](http://www.exploratorium.edu) serves as an R & D center for the arts within the larger learning laboratory of the Exploratorium. The CAI will lead the Exploratorium’s arts strategy and direction, expanding the museum’s focus on art as a medium for exploration, inquiry and discovery. Working with program directors from across the museum as well as a council of national advisors, the Center oversees the museum’s long running Artist-in-Residence Program, hosts research fellows, and initiates special projects to advance work at the intersection of art and interdisciplinary learning.
In addition to the formation of the CAI, the Exploratorium’s expanded work in the arts includes the new Over the Water program (for the annual commissioning of large scale, temporary works in the outdoor spaces at Pier 15); the Black Box gallery space designed especially for media installations; the Forum, a cabaret style theater equipped with a Meyer sound system perfect for our Cinema Arts programming; and Ways of Knowing, a conversation on the creative process featuring compelling artists and other interdisciplinary pioneers.

This expanded work in the arts at re-opening is made possible by a generous grant from Sakurako and William Fisher.

OVER THE WATER

The Exploratorium’s new location on a major civic promenade with 1.5 acres of outdoor space has inspired Over the Water, a rotating program of large scale artworks for the public realm. Each year a curator of international renown will work with the Exploratorium in the selection of an artist to develop a project for the Exploratorium’s dynamic site on the edge of the city and the bay. For the first project, the Exploratorium is working with architecture and design curator Henry Urbach, Director of the Philip Johnson Glass House, to realize a project with Japanese artist Fujiko Nakaya. For the next project in 2014 the Exploratorium has engaged curator Nato Thompson, Chief Curator at Creative Time in New York.

Fujiko Nakaya

Fog Bridge (April 17 – September 16, 2013)

Japanese artist Fujiko Nakaya’s lifelong artistic investigation engages the element of water. Working as part of the legendary group Experiments in Art and Technology (E.A.T.), in 1970 she enshrouded the Pepsi Pavilion at the Osaka Expo in vaporous fog, becoming the first artist to create a sculptural fog environment. Since that first project Nakaya has created fog gardens, fog falls and fog geysers all over the world. Fog Bridge is her first project in the San Francisco Bay Area, a region famous for its dramatic fog, and will heighten public awareness of the region’s dynamic weather and bay ecology for an international public.

Fog Bridge will stretch across the 150-foot-long pedestrian bridge that spans the water between Piers 15 and 17. One thousand high-pressure nozzles lining the bridge will create an immersive environment that shrouds participants in mist and puts their own sensorium, perception, and surroundings at the center of their experience. The work will be stunningly lit for the night.

Nakaya collaborated with Thomas Mee, a Los Angeles based engineer in the development of her first fog installation in 1970. Mee had originally developed techniques for generating chemical based artificial fog for agricultural contexts (to protect orchards from frost). Through their collaboration Mee figured out a system for generating water-based artificial fog. The company he founded, Mee Industries, is now operated by his three children. Nakaya has been collaborating with them for the last 40 years.
OUTDOOR GALLERY AND FREE CIVIC SPACE
The Exploratorium will exhibit works in a ticketed Outdoor Gallery, as well as in free civic space around Piers 15 and 17. Works in these areas will encourage observation and interaction with natural and urban phenomena.

Jeppe Hein
*Long Social Modified Bench* (September 2013 – April 2014)
**Newly Commissioned Work, 2013**
“For me, the concept of sculpture is closely linked with communication”...“I want to show that the work isn’t anything on its own, it is only what the public informs it with. The viewers’ role brings the piece to the center of attention.” - Jeppe Hein

Based in Denmark and Berlin, artist Jeppe Hein reconfigures the standard-issue park bench to inspire new forms of social engagement and communication. Turning the bench into forms that suggest complex yet whimsical play structures, they radically re-engineer how we interact with one another in public space. The Exploratorium has commissioned Hein to create a series of six site-specific Social Modified Benches to animate the public promenade of the Embarcadero in front of Pier 17. His work reminds us of how social behavior is often shaped by art and design, and vice versa.

Doug Hollis
*Aeolian Harp* (Historic Work Re-Designed for Site, 2013. Permanent installation.)

Doug Hollis’s *Aeolian Harp* straddles a wind tunnel created by Piers 15 and 17 on the Exploratorium’s new site, responding to the delicate zephyrs and howling gusts blowing in from San Francisco Bay – an acoustic reflection of the forces acting on the edge of the city and the water. This wind activated sonic work *plays* the dynamics of the site. The sounds produced by the wind blowing across the choir of strings are transmitted mechano-acoustically to speakers. The harp is the culmination of a series of investigations into the nature of resonating strings and the ways in which this resonance can be transmitted and amplified through non-electronic means. It will be on permanent view. The first version of Doug Hollis large-scale wind harp was mounted on the roof of the Exploratorium’s original home in 1976. Working as an Artist-in-Residence alongside the museum’s founder, the noted physicist and educator Frank Oppenheimer, Hollis developed a fascination with sound sculpture and landscape that has persisted throughout his career.

ARTIST-IN-RESIDENCE PROGRAM
Since its inception in 1974, the Exploratorium’s Artist-in-Residence Program has grown to include hundreds of artists and performers. The museum works with individuals and artist groups who are drawn to collaboration, interested in interdisciplinary dialogue, and open to developing new working methods. Projects have taken countless forms, such as multimedia performances, theatrical productions, animated filmmaking, immersive installations, walking tours, and online projects. The program allows for artists to embed within the unique culture of the institution, affords access to a dynamic and diverse staff, and provides opportunities for cross-pollination with a broad public. While the museum
allows room for variance, residencies typically unfold over two years and include both an exploratory and project development phase.

**Harrell Fletcher, Artist-in-Residence**  
*The Best Things In Museums are the Windows (July 18-21, 2013)*  
In July of 2013, Portland-based artist Harrell Fletcher will develop an ambitious four-day trek that follows a line of sight from the Exploratorium’s new location to the summit of Mt. Diablo in the East Bay. The path will be seeded with Exploratorium-esque inquiry-based experiences along the way created by small teams of Exploratorium staff and neighborhood collaborators. Like much of his work, this project reflects Harrell’s interest in artful investigation, collaboration, and informal learning. By carrying the ethos of the museum into everyday environments, Fletcher’s project furthers the connections between the Exploratorium and its surrounding community.

**Lucky Dragons, Artists-in-Residence**  
*DAYSAY (April 17, 2013 – April 17, 2014)*  
Lucky Dragons (Luke Fischbeck and Sarah Rara) are a visual and performing arts duo from Los Angeles that harness technology, collaboration, and spontaneity to create uniquely ephemeral experiences that often blur the line between audience and performer. At opening, Lucky Dragons will debut DAYSAY, a dynamic light and sound installation inside a 14-foot circular opening in the pier above the water, just outside the main entrance of the museum. On-site microphones record ambient sound during daylight hours and then play them back during dark hours, delayed by 12 hours. LED lights reflecting off the water gradually grow brighter and brighter over the course of the night. 8PM will sound and look like 8AM. 12AM like 12PM. DAYSAY is the first of the duo’s experiments concerning the world of night at our new home, set to unfold throughout the summer and fall with related nocturnal performances, events, and interventions.

**Meara O’Reilly, Artist-in-Residence**  
*Chladni Singing, (to debut at opening, permanent exhibition)*  
Meara O’Reilly is a sound artist and instrument builder based in San Francisco. She is currently in the final stages of developing Chladni Singing, an interactive exhibit that enables visitors to draw extraordinary geometric patterns in sand with their voices. Additionally, and in partnership with the Center for Art and Inquiry, she has developed a blog exploring auditory illusions called Illusion Songs. [http://illusionsongs.tumblr.com/](http://illusionsongs.tumblr.com/)

**Paul Clipson, Cinema Artist-in-Residence**  
*Light Year, 16mm film (to debut at opening)*  
*Newly commissioned work, 2013*  
The Exploratorium has commissioned San Francisco-based filmmaker Paul Clipson to create an abstract 16mm film study of the area surrounding the museum’s new home on the Embarcadero. The film will showcase Clipson's extraordinary treatment of the complex systems in the urban and natural landscape, from the ephemeral rhythms of light and water to the rigid order of crosswalks and skyscrapers. Clipson's work generally involves live collaborative performances with sound artists and musicians. For this film, an original soundtrack will be written and performed by composer Tashi Wada. Clipson’s works have been exhibited and performed both nationally and internationally at such
festivals as the New York Film Festival, Edinburgh Film Festival, and the Rotterdam International Film Festival. See an article about Clipson's work here.

David Cerf, Cinema Artist-in-Residence
Dave Cerf is a filmmaker, musician, sound artist, and software designer based in San Francisco. Cerf's residency will result in two commissioned sound works. Testing the limits of the state-of-the-art Meyer Constellation sound system housed in the Exploratorium’s Forum, he will create a unique and dynamic soundscape. Cerf will also create a new soundtrack for a work he selects from the Exploratorium’s Cinema Arts collection, which includes hundreds of 16mm films. After exploring the range of works that form the collection, Cerf will select a piece and will compose a new soundtrack for it that will debut during a live performance in fall 2013.

Michael Rudnick, Cinema-Artist-in-Residence
Newly commissioned work, 2013
Filmmaker Michael Rudnick has presented more than 100 works at around the world in venues including the San Francisco Cinematheque, SFMOMA, the Centre Pompidou, the Cannes Film Festival, and Anthology Film Archives. Rudnick has created a series of high- and low-tide studies along the shore, multiple time-lapse videos from the roof of the Exploratorium’s new home at Pier 15, and a longer form meditation on time and tide along the Embarcadero.

Sam Green, Cinema Artist-in-Residence
Fog City
Newly commissioned work, 2013
Sam Green is a filmmaker whose recent work explores the potential of live performance as a way to expand the documentary beyond traditional viewing experiences. A collaboration with cinematographer Andy Black, Fog City, is a cinematic study of Bay Area fog. The work takes a poetical view of this complex natural phenomena that for many months each year defines the psychogeography of the region. Green's previous live documentaries, The Love Song of R. Buckminster Fuller and Utopia in Four Acts, were showcased at such places as the San Francisco International Film Festival, The Kitchen (NYC), and the Institute of Contemporary Art (Boston). In 2004, Green's feature-length documentary, The Weather Underground, received an Academy Award nomination in addition to premiering at the Sundance Film Festival and being featured in the Whitney Biennial.

CINEMA ARTS PROGRAM
The Exploratorium’s The Cinema Arts Program was founded as a pathway to learning within the context of the immersive and transformative language of film. Although often experienced within the confines of a light and sound controlled theater, the screenings work in tandem with many of the activities and exhibitions designed for the museum's floor, by showing works that mirror overall thematic investigations. The Film Collection, a composite of 16mm film and digital work, serves the museum’s general public, targeted audiences, staff and arts research projects, invited classes as well as serving beyond the Bay Area with screenings in London, Singapore, Minnesota, Texas, North Carolina
and New York, giving insight into the potential value of alternative films in science museum environments.

**Semiconductor, The Shaping Grows**  
**In the Webcast Studio**  
**April 17, 2013 - September 30, 2013**  
The **Cinema Arts** and **Moving Images** departments of the Exploratorium have collaborated to present a newly commissioned work by British-based media artists and Exploratorium Artists-in-Residence Semiconductor (Ruth Jarman and Joe Gerhardt). Through moving image works Semiconductor explores the material nature of our world and how we experience it, questioning our place in the physical universe. **The Shaping Grows** (2011) animates mineral crystal formations to provide a window into the intricate makeup of the physical world. Seismic data of recent earthquake activity from around the world is converted into a sound-scape of the Earth in a state of flux. **The Shaping Grows** was originally commissioned by Swarovski for the Digital Crystal exhibition at the Design Museum, London. Three other short films will also be screened. **20Hz** (2011) creates complex aural and visual patterns from a geo-magnetic storm and was co-commissioned by Arts Santa Monica and Lighthouse, supported by the British Council. **Black Rain** (2009) tracks interplanetary space for solar wind and was originally commissioned by Animasivo Mexico City. **Magnetic Movie** (2007) reveals the secret lives of invisible magnetic fields, and was an Animate Projects commission for Channel 4 in association with Arts Council England.

**ARTWORKS IN CONNECTOR GALLERIES**  
As visitors travel between the museum’s main galleries they will encounter art at every turn.

**Rebecca Cummins**  
**Simply Smashing** *(Newly Commissioned Work, 2013)*  
Cummins is creating a site-specific version of her incredible **Simply Smashing** installation for the main entrance wall of the Exploratorium. A 20-foot-long wall of approximately 900 water-filled wine glasses that become optical devices from which to turn the world upside down, **Simply Smashing** is an elegant and playful meditation on perception and fragility.

**Golan Levin**  
**Scrapple**, 2005  
**Scrapple** is an audiovisual installation in which everyday objects placed on a table are interpreted as sound-producing marks in an “active score.” The **Scrapple** system scans a table surface as if it were a kind of music notation, producing music in real-time from any objects lying there. The installation makes use of a variety of playful forms; in particular, long flexible curves allow for the creation of variable melodies, while an assemblage of cloth shapes and small objects yield ever-changing rhythms. Video projections on the **Scrapple** table transform the surface into a simple augmented reality, in which the objects placed by users are elaborated through luminous and explanatory graphics. The 2-meter long table produces a 4-second audio loop, allowing participants to experiment.
freely with tangible, interactive audiovisual composition. In the *Scrapple* installation, the table is the score.

**Marteen Baas**  
*Sweepers Clock, 2009 (work on loan from artist)*  
Marteen Baas combines theater, art, film, and design in Sweeper's Clock to make a 12-hour-long movie in which two performers replicate an analogue clock by sweeping two piles of rubbish (one for the hour hand, one for the minute hand) to indicate the time.

**Arthur Ganson**  
*Mach**ine with Concrete, 1992 (work on loan from artist)*  
Legendary kinetic and mechanical sculptor Arthur Ganson has lent us one of his simplest and most potent works for our galleries: Machine with Concrete. A motor is connected to a block of concrete. The gear reductions mean the final gear will make one revolution in roughly 13.7 billion years. The machine runs uninterrupted even though the final gear is embedded in concrete, and cannot rotate. See a video of Machine with Concrete here.

**Pe Lang**  
*Moving Objects*  
Captured inside a large round window, hundreds of black rings travel randomly left and right along more than 50 horizontal strings. Closer examination reveals that the strings are driven at each end by small motors and that the rings that seem to pass through each other are actually bouncing against one another. Pe Lang's Moving Object is an example of his interest in creating simple systems that result in wildly complex pattern generation. Moving Objects is a site-specific piece partially supported by SwissNex San Francisco.

**WEST GALLERY**  
The West Gallery is a stage on which to explore human psychology, and socio-cultural phenomena. Topics range from internal cognitive experiences such as attention and emotion to more external social behaviors such as communication, negotiation and people-reading. The West Gallery also houses the new Black Box, a controlled light and sound environment for the presentation of work in a range of formats.

**Special Exhibition**  
*
The Changing Face of What is Normal: Mental Health*  
April 17, 2013-April 13, 2014  
The first in a series of installations and public programs that will be embedded in the West Gallery. *The Changing Face of What is Normal: Mental Health* explores how we have defined, categorized, and treated people who fall outside of a professional or societal conception of what constitutes normal mental health and activity. The exhibition will be divided into three parts: an exhibition of the personal effects of patients from Willard State Hospital, a decommissioned mental institution; an exhibit that coincides with the release of its latest edition of the controversial *Diagnostic and Statistical Manual of Mental Disorders* (DSM)-5th edition featuring poignant videotaped interviews with both
clinicians and clients speaking about their experiences and commenting on the difficulty of categorizing human behavior; and Restraint, an interactive installation that displays—and lets visitors interact with—a late 19th century Utica Crib, a restraining device used to confine and calm patients in American mental health institutions. Read the full press release here.

**BLACK BOX**
The Black Box, an 800 square-foot "gallery within a gallery", provides a dedicated space for a rotating program of immersive installations focusing on human behavior and social interaction. The environment provides guest artists with a controlled light and sound environment for the presentation of work in a range of formats, including film, video, photography, sculpture, and interactive media.

**Invisible by Night**  
Lynette Wallworth  
April 17, 2013-September 29, 2013  
Lynette Wallworth’s Invisible by Night inaugurates the West Gallery’s Black Box media space. This quietly interactive video installation responds to the visitor's touch and projects a life-sized woman whose eternal pacing can be interrupted by the viewer. Invisible by Night builds gestural mirroring into its interactive structure to create powerful emotional connections with the viewer. The piece signals our neglect of “histories of site” through our more immediate lack of compassion for those who suffer amongst us. Its attention to the transient beauty of compassion and interaction traverses boundaries of urban community and history.

**Ben Levy (of LEVYDance Company)**  
*Comfort Zone*  
(October 4, 2013 - January 5, 2014)  
Benjamin Levy, San Francisco-based dancer, choreographer, and founding artistic director of LEVYdance, began working as an Exploratorium Artist-in-Residence in 2011 to develop a participatory work for the West Gallery's Black Box. An immersive installation exploring choreography, group dynamics, collaboration, and social boundaries, the project is Levy's first work in a museum setting, and the scope of interaction it prompts between visitors presents compelling conceptual and practical challenges. Levy has been working extensively with staff artists and scientists, media developers, engineers, and the public to develop and deepen this installation.

**Other exhibits of note in the West Gallery**

**Anom Suryawan**  
*Balinese Masks*  
Balinese mask maker Anom Suryawan was commissioned to created three masks to anchor an interactive exhibit called Communicating Emotions with your Body, at which visitors explore ways of expressing emotions through posture and movement. The Exploratorium also purchased five of the artist’s existing masks for visitors to use at the exhibit. In addition to being a mask maker, Ida Bagus Anom Suryawan is a masked dancer and shadow puppeteer from Mas, Ubud, Bali in Indonesia. His family has lived at
the same compound for about 500 years, carrying on these traditional Balinese arts. He learned mask making and masked dancing from his uncle and the art of shadow puppetry from his father; both his uncle and father are well-known artists in Bali, and actively carrying on these traditions at sacred ceremonies is deeply important to him and his family.

Chris Johnson  
*Question Bridge: Black Males*  
April 17, 2013–April 2014  
“Question Bridge: Black Males” is a project that critically explores challenging issues within the Black male community by instigating a trans-media conversation among black men across the geographic, economic, generational, educational and social strata of American society. Question Bridge provides a safe setting for necessary, honest expression and healing dialogue on themes that divide, unite and puzzle black males in the United States. Question Bridge originated in 1996, when artist Chris Johnson was looking for a way to use media art to generate a meaningful conversation around class and generational divisions within San Diego’s African American community. Mediated through the lens of a video camera, ten members of the black community were given a format to openly express their deeply felt beliefs and values through candid question and answer exchanges. None of the questions or answers were prompted. Over the past four years, Johnson, along with Hank Willis Thomas, Bayeté Ross Smith and Kamal Sinclair, have traveled the nation collecting questions and answers from over 150 Black men in eleven cities. The resulting video project contains of over 1,500 exchanges. By focusing on exchanges within this extended community, surprising insights and new possibilities for witnessing our common humanity emerge.

Clayton Campbell  
*Words We have Learned Since 9-11*  
April 17, 2013 – TBD  
This participatory photo installation opened for the first time in the Southern United States at the Museum of Mobile on September 11 in conjunction with their exhibition of artifacts from Ground Zero, World Trade Center. A second fall exhibit at Unit 24 Gallery in London followed it during the Frieze Art Fair. Campbell’s project invites visitors to the exhibition to be photographed with “words” they have learned since 9-11, and those photos become part of the on-going Words project. Since it’s beginning Words We Have Learned Since 9-11 has been exhibited across the globe.

**EAST GALLERY**  
The East Gallery engages visitors in the living world immediately around them, providing opportunities to see, feel, and explore life at different scales.

Michael Brown (with Evan Shively)  
*The Tree Experience*  
Developed by artist Michael Brown in collaboration with reclaimed wood specialist Evan Shively, The Tree Experience has been created with a 330-year-old Coastal Douglas Fir tree that has been split down the center to reveal its rings immersing visitors in a fascinating study of dendrochronology. The wood of the tree will create the walls of an
intimate, contemplative space with a center bench. The enormous, lacy root structure compels visitors to appreciate - the complexity and sheer enormity of this grand, once-living organism.

Lucy Conklin  
*Lab Illustrations*  
After spending several weeks in the Exploratorium’s biology laboratory, illustrator Lucy Conklin will produce a number of original works that capture the inner workings of the facility. Beyond hand-rendered ‘portraits’ of the many organisms cultured in the lab, Conklin will capture the process and practices of staff biologists.

Sam Taylor-Wood  
*Still Life* (on loan from the Fisher Collection)  
In the celebrated film *Still Life* (2001), an impossibly beautiful bowl of fruit decays at an accelerated pace via time-lapse editing, transforming a timeless scene into a visceral memento mori. The work will be placed in close proximity to *Energy From Death*, a floor exhibit concerning decay and the transfer of energy from one species to another.

Marine Wall – “Stories from the Sea”  
Curated by *Cinema Arts*  
The ocean supports an incredible diversity of life, both in the water and along the shore. These cinematic observations offer visual immersion in a range of oceanic narratives—from the microscopic lives of plankton to the complex relationships between humans and the world beneath the waves.

*Baby Squid, Born Like Stars*  
by Steve Haddock and Brad Seibel (2006, 6 min)  
A beautiful and meditative discovery of a squid—Gonatus onyx—giving birth to thousands of young.

*Ray: A Life Underwater*  
by Amanda Bluglass (2011, 7 min)  
An affectionate portrait of a 75-year-old man’s deep-sea diving career and his collection of antiquated diving gear. Exploratorium Cinema Arts commissioned this seven-minute edit of Bluglass’s film.

*Pacific Drifters*  
by Nannette van Antwerp (2011, 5 minutes)  
Filmed off the coasts of the Pacific Rim, including the Bay Area, this short captures a world of microscopic drifting organisms known as plankton.

*Whale Fall*  
by Sharon Shattuck and Flora Lichtman (2011, 4 minutes)  
This whimsical animation uses paper cutouts to tell the moving story of what happens after a dead whale sinks to the ocean floor.
**Life By the Tide**  
by Joshua Cassidy (2009, 7 minutes)  
Using time-lapse and other techniques, this film captures the hypnotic and normally invisible movements of the creatures exposed at low tide on the Pacific coast.

**BAY OBSERVATORY GALLERY**  
This indoor and outdoor exhibition space features spectacular views of the Bay and urban San Francisco, and uses these views as an entry point for investigations of the variety, history, and dynamics of the landscape. Exhibits and artworks in the Bay Observatory engage with the environment from the multiple perspectives of physical and geographic sciences, ecology, history, and contemporary experience.

**Amy Balkin**  
**The Atmosphere: A Guide**  
*The Atmosphere: A Guide* is a poster-essay depicting various human influences on the sky and their accumulated traces, whether chemical, narrative, spatial, or political. Visually referencing the *Cloud Code Chart*, another interpretive aid for looking up, the *Guide's* visualizes some ways that humans literally and figuratively occupy the present, past, and future atmosphere, organized from sea level to the exosphere. Amy Balkin is a San Francisco artist whose recent work is concerned with how humans create, interact with, and impact the social and material landscapes we inhabit. Balkin was a featured artist at dOCUMENTA (13), presenting documentation from her ongoing project *Public Smog*.

**Chris Benton**  
**Aerial Kite Photography**  
The South San Francisco Bay salt evaporation ponds take on a variety of colors due to halophilic organisms that adapt to the various salinities of the ponds. Photographer Cris Benton captures this vibrant landscape in a series of aerial photos taken from kites flown over the ponds.

**Prelinger Library**  
**Observatory Library**  
Utilizing resources from the Prelinger Library and Film Archive specializing in social geography, local ephemera and media, the library space in the Observatory will consist of six specifically designed atlases, facsimile books and media concentrating on the natural and infrastructural history of the Bay Area.

**Jane Wolff**  
**Bay Lexicon**  
*Bay Lexicon* is a series of flashcards and published writings to be used on a walk from Fort Point to Hunter’s Point along the San Francisco waterfront. This series of images, words and ideas provokes travelers to observe and question the layered dynamics of the ecological and cultural aspects of place.

**Rebecca Cummins and Woody Sullivan**  
**Solar Hour Benches and Oculus Table**
The Solar Hour Benches are a set of six oval benches, each with a slit aperture aligned with the sun for one particular hour: 10am, 11am, Noon, 1pm, 2pm or 3pm solar time. Throughout the year, for only 20 minutes before and after the corresponding hour, sunlight travels through the aperture and projects onto inscriptions on the ground. Scientific and cultural aspects of time and sundials are also depicted on each bench.

The Oculus Table introduces a contemporary twist to a common ancient Greek sundial, the scaphe (σκάφη or "bowl"). With sunlight streaming through the oculus – the hole in the ceiling of the Observatory – the movable table can be visually aligned with landmarks on the skyline (Coit Tower, Transamerica Pyramid, etc.) to discover the sun's position in the sky and the current time and date.

Terrance McArdle
Heliorama
A companion view of the Bay Observatory Oculus, Heliorama is a walk in space in which a time-lapse view of the sky is projected in the round.

Eric Fischer
Visualizing the Bay
Eric Fischer's mapping works for the Observatory focuses on the activity patterns in cities reflected in social media and how those patterns are shaped by transportation, land use, and urban design. The animation for the San Francisco topographic vitrine shows the daily cycle of three of these aspects in different parts of the city—movement of Muni buses and trains, photos posted to Flickr, and tweets posted to Twitter—the latter two of which are also combined in detail for the large wall image. The interactive Visualizing the Bay lets museum visitors explore the differing residential patterns recorded by the US Census for people of different ages and ethnicities.

Michael Davis
Inverted View
Using a traditional box camera this optical device suggests a survey camera though with operable parts for altering the view.

Ken Murphy
Time Shift, 2013
Time-lapse photography is a technique that allows viewers to tune in to different time frames and observe phenomena that might otherwise go unnoticed. For "Time Shift", Murphy captured scenes throughout the Bay Area, such as tides, ships, air traffic, and weather. The work allows viewers to browse and select from an archive of time-lapse sequences that reveal human and natural processes at work in the local landscape. Several of the locations are within sight of the Observatory and can be observed in relation to the filmed sequences.

Ken Murphy is a tinkerer, programmer, and artist working in a variety of media. He's an active participant in the "maker" community, and has invented simple, creative projects...
to teach kids about electricity. In his time-lapse work, he’s developed unconventional techniques for capturing and presenting time-lapse imagery, and has produced several long-term projects, some which span several years.

**Andrej Zdravic**  
**Water Waves & Ocean Golden Gate**  
*Water Waves* is a multi-monitor video installation and time-horizon study of the power and beauty of ocean waves. Originally commissioned by the Exploratorium in 1990, this project will be reinstalled. *Ocean Golden Gate* is a series of vignettes conjuring up the dynamics and moods of the Pacific Ocean beyond the Golden Gate. The project will poetically trace the weather, tides, and energy of the coastal edge. Zdravic is a Slovenian artist.

**SOUTH GALLERY (the tinkering studio™)**  
The South Gallery is a public workshop area where visitors can engage in "learning by making" right across from where our exhibits are being built. The core of this space is **the tinkering studio™**, a focused area where visitors can engage in more in-depth projects and meet makers from around the world.

**Tim Hunkin**  
**The Tinkerers’ Clock**  
A large-scale kinetic clock built around a column in the South Gallery. Mechanical “makers,” small moving figures activated by visitors through hand-crank devices will “work” throughout the body of the clock, seeming to tinker with and build the clock’s structure. On the hour, the clock’s giant numbers, assisted by mechanical “makers,” will swing out to complete the clock face, displaying the current time. Then the clock face will fold back in and the “makers” will go back to work for another 60 minutes until it’s time to strike the hour again.

**Michael Scheiss**  
**Visible Pinball**  
Play a free game on a transparent pinball machine with visible mechanical and electromagnetic parts. Visible Pinball serves as a striking introduction to our classic electricity and magnetism exhibit collection.

**Scott Weaver**  
**Rolling Through the Bay**  
Made with over 100,000 toothpicks over the course of 35 years, this sculpture of San Francisco features multiple ping-pong ball runs that allow you to "tour" the sights in different parts of the city.

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The Changing Face of What is Normal: Mental Health
April 17, 2013 - April 13, 2014

How do we—as individuals and as a society—perceive, define, respond to, and interact with those deemed abnormal, whether in body, mind, or behavior? The Changing Face of What is Normal, is one of several inaugural special collections to premiere at the Exploratorium’s re-opening on April 17, 2013 at San Francisco’s Pier 15. It is part of the museum’s new gallery dedicated to the art and science of human behavior. The exhibition runs through April 2014.

The exhibition includes three elements, the first of which is a collection of artifacts such as suitcases and trunks of 14 patients confined at the Willard State Hospital, a New York mental institution that was decommissioned in 1995. The personal items provide an evocative statement of the residents’ lives before they were institutionalized.

The artifacts are on loan from the NY State Museum. The exhibit also includes photographs of the patients’ effects by Jon Crispin, poetry by psychiatrist/poet Karen Miller, and interviews with both patients and caregivers.

These objects are juxtaposed with an exhibit that coincides with the release of its latest edition of the controversial Diagnostic and Statistical Manual of Mental Disorders (DSM)-5th edition. These elements explore its evolution as a guide used by psychiatric professionals to diagnose and treat cognitive, emotional, and behavioral disorders. The exhibit includes poignant videotaped interviews with both clinicians and clients speaking about their experiences and commenting on the difficulty of categorizing human behavior.

The third element in the exhibition is Restraint, an interactive installation that explores the ways psychiatric patients have been restrained over time. Visitors can experience restraint for themselves inside the late 19th century Utica Crib, a cage-like contraption made of wood. Visitors also can view and comment on other types of restraints, including the ways societies and cultures constrain everyday behavior, and the ways we must often restrain our own impulses. Visitor feedback on all collection elements will be strongly encouraged, as well as the sharing of personal experiences and perspectives.

The Changing Face of What is Normal exhibition asks visitors to put themselves in the shoes of others—and to imagine at one time or another, everyone feels different.
“Normality” is a constantly evolving concept with a surprising range of definitions. The myriad ways we label each other has possible implications of those labels. Ultimately, it prompts each of us to use the understanding of mental health as a lens to examine the way we perceive ourselves and our relationships with others.

Willard State Hospital artifacts
When the Willard State Hospital closed and was decommissioned in 1995, more than 400 artifacts belonging to 14 former patients were found in an attic. The bags contained personal items the patients brought with them when they arrived and in many cases never saw again. Ranging from the banal to the precious, the items tell powerful stories of their owners’ lives: hand-sewn baby dresses from a seamstress whose babies died and whose husband was a violent alcoholic; frantic unsent letters pleading for help in escape; pictures of a polished European girl frolicking on the beach; citizenship papers; a pair of ice skates; and books of philosophy, literature, and poetry.

Jon Crispin
Jon Crispin has been commissioned to contribute a series of photographs for “The Changing Face of What is Normal.” His photographs feature the suitcases in a series of stages from covered and protected to the artifacts within the suitcases exposed. Crispin has been a full-time, self-employed photographer since 1974, dividing his time between regular freelance assignments and longer-term photo documentary projects. His regular clients include national publications, colleges and universities, and non-profit organizations. His documentary projects include exhibitions and publications on 19th century New York State insane asylums; 19th and early 20th century New York State prisons; the living conditions of rural New York State residents; New York State agriculture; the architecture of Syracuse, New York; food and nutrition programs for the needy, and the Erie Canal. Many of these projects were funded by The New York State Council on the Arts and by the New York State Museum. In the past few years, Jon has photographed over 300 plywood panels from the Fulton Street viewing area at the New York City World Trade Center site, as well as over 100 panels from Liberty Island overlooking the same location. He is currently working on a documentation of suitcases left behind by patients at the Willard Asylum in Willard, NY. Jon has a Bachelor of Fine Arts degree from Wittenberg University. www.joncrispin.com/

Karen Miller
Karen L. Miller is a psychiatrist and a poet and has worked as an artist-in-residence creating poetry based on the files belonging to the mental patients from Willard Mental Hospital, a facility that was de-accessioned in the late 1990’s. This project augments “The Changing Face of What is Normal” an installation that includes the patient's belongings found in the attic. She began as a poet, majoring in American History and Literature at Harvard. She went on to medical school at Tufts, and continued her training in pediatrics, then in child and adult psychiatry. Until 2009, she worked primarily in public medicine—at city hospitals and clinics, in state psychiatric hospitals, and in schools. She taught at Harvard hospitals and was until 2009 an Assistant Clinical Professor of Psychiatry at Harvard Medical School. Since 2009 she has been in private practice. She returned to poetry in 2004 and made changes in her psychiatric practice to allow her more time to write. She was awarded a residency at the Vermont Studio Center in 2007 and published poems in literary journals. In 2008 she read about the discovery of hundreds of suitcases after the closure of Willard State Hospital, in upstate New York, and decided to write a book of poetry about the people who lived and worked at Willard. Since December, 2009, she has worked with the historian, Craig Williams, of the New York State Museum, whose work, with his staff, preserved and archived these cases. She has also interviewed former patients, former employees, and people who lived near the hospital. She continues both to research and write about this community.

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EXPLORATORIUM PIER 15 ARTS FACT SHEET

- More than 250 works created by Artists-in-Residence in first 44 years
- Exploratorium re-opens at Pier 15 with more than 40 new artworks to be experienced across the entire museum
- Beginning in 2013, Exploratorium to engage 2 new Artists-in-Residence each year (1 emerging; 1 mid career)
- Exploratorium collaborates with dozens of artists as collaborators in our ongoing exhibit development process
- 600 16mm films by artists reside in the museum’s Cinema Arts Collection
- Black Box gallery features 3 media artworks per year
- *Over the Water*, a new art installation initiative, presents 1 major new outdoor public artwork each year
- The new Center for Art & Inquiry to present 1 symposium relevant to the history of art, science, and education annually
- Debuting June 2013, a new forum for screenings, talks, and performances equipped with a Constellation acoustic system by Meyer Sound of Berkeley, CA
- The restored Wave Organ, the iconic wave-activated sound sculpture, remains at the end of the breakwater forming the Marina Yacht Harbor as a permanent public art installation and gift to the community
- Read more about the Exploratorium’s arts programs at [www.exploratorium.edu/arts](http://www.exploratorium.edu/arts)

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CURATORS IN THE EXPLORATORIUM’S SIX MAIN GALLERIES

Outdoor Gallery

Shawn Lani, Senior Artist and Curator

Shawn Lani is a senior artist at the Exploratorium, directing the Outdoor exhibition development. As the curator for Outdoor Works at the new Exploratorium, Shawn’s task is to transform the outdoor spaces into an evolutionary gesture of civic and environmental engagement. His work can be summarized as a collection of exhibits created as accessible objects of wonder; mysterious yet navigable. Ideally, interacting with them leads to the type of investigations common to both scientists and artists: noticing details, asking questions, and exploring phenomena.

Shawn is also an accomplished regional artist with large-scale water sculptures in downtown San Francisco and pieces on permanent display in over forty national and international venues. He received a design award from the New Orleans chapter of the American Institute of Architects for his work with fellow Exploratorium artists on a monumental kinetic building facade.

Eric Dimond, Associate Curator

Eric Dimond has spent the last 14 years creating original exhibits at the Exploratorium while collaborating with multiple design partners and clients. His iterative design process draws upon a rich mixture of educators, scientists and artists that make up the Exploratorium’s extended makers community. He recently completed his work as the Lead Exhibit Developer for the National Science Foundation funded Geometry Playground Exhibition, a 5,000 square foot exhibition featuring large scale climbing structures. He is currently the Associate Curator/Project Director for the Outdoor Exploratorium gallery. This new gallery includes over 60,000 square feet of both paid and unpaid public space at the Exploratorium’s new home along the San Francisco waterfront’s Pier 15.
Bernard and Barbro Osher West Gallery

Pamela Winfrey, Senior Artist

Pamela Winfrey joined the Exploratorium in 1979 and began working in arts programming in 1986. She is the curator for the Exploratorium’s new Bernard and Barbro Osher West Gallery, one that explores humans as phenomena. Recent exhibitions curated by Winfrey include Liminality (2007), Reconsidered Materials (2006); Art Life (2004), an exploration of artworks with human and living attributes; and The Prepared Exploratorium (2001), in which musicians and sound artists turned the Exploratorium into a giant instrument. To help the Bealle Center in Irvine, California celebrate their fifth anniversary, she curated “Five” which featured five interactive media artists from five different countries. In 2005, she served as a panelist at Ars Electronica (Linz, Austria) for the interactive arts category. In 2009 she was the lead curatorial consultant for Creative Capital’s emerging art forms.

Pamela has organized performance series including Situation Abnormal (2004-2005), featuring artists who are re-imagining the content, form, and raw material of performance; and Listen: A Sonic Series (2004-2005), with composers, musicians, artists, and scientists exploring the art of sound. She was also a founding member of Mobius Operandi, an electro-acoustic sound sculpture ensemble. During her tenure, they produced two CD’s and five large-scale performances that included a cornfield, large swinging speakers, and clocks with human clockworks.

Pamela is a playwright. Her play, The Sounding, a drama based on the laying of the Atlantic cable was read in Science on Stage 2004 at the Magic Theater. In 2011, she was in residence at Climate Theater where “Train Wreck at the Table” was seen. Her plays and performance works have been presented at numerous venues around the country. She has received a Marin Arts Council Independent Artist award and a Sloan grant for “Celestial Bodies”, a play about the first female radio astronomer. In the summer of 2012, her play “It All Leads to the Lemon Scene” won the Audience Favorite award at the Avant Garde Festival in Manhattan.

Hugh McDonald, Project Director, Senior Science Writer and Associate Curator

Hugh McDonald is a Project Director, Senior Science Writer, and Associate Curator for the Exploratorium’s Bernard and Barbro Osher West Gallery, which focuses on the interplay between science, society, and culture. He is the Principal Investigator of Science of Sharing, an NSF-funded initiative to develop exhibits that let visitors experiment with resource-sharing and collaborative problem-solving, link their experiences to larger societal issues like climate change and environmental destruction, and learn about the scientific study of human behavior. Hugh
was the lead writer/editor for the museum's Mind and Seeing exhibit collections and the Pirelli Award-winning Global Climate Change: Research Explorer website, and contributing writer/editor for numerous other exhibitions, sites, and publications. He received his Ph.D. in social psychology from Indiana University in 1997 and served on the faculty at Bates College and San Diego State University before joining the Exploratorium in 2001.

**Bechtel Central Gallery**

**Thomas Humphrey, Ph.D., Senior Scientist**

Dr. Humphrey is curator of the Bechtel Central Gallery. He received his doctorate in physics from the California Institute of Technology in 1975 based on his research at Fermilab. Dr. Humphrey was essential in the creation and funding of the Exploratorium Teacher Institute training program and maintains an active role as guest lecturer in the program. He has taught physics and perception at many art institutes and universities. He invented the course "Perception in Art and Science," which he has taught at the San Francisco Art Institute, John Carroll University, and the Academy of Art College. During the period 1980-84, Dr. Humphrey worked as a sculptor in Cleveland, Ohio, exhibiting four one-man shows and appearing in several juried shows including the May Show at the Cleveland Museum of Art. He has been the principal investigator on over 30 Exploratorium grants. He has constructed many exhibits for the Exploratorium and contributed to the development of many others. Dr. Humphrey wrote the first Exploratorium catalog and has contributed articles to Exploring, the Exploratorium magazine. He has consulted in the United States, Asia, and Europe. He also plays Bluegrass guitar.

**Richard O'Reilly Brown, Ph.D., Senior Neurobiologist**

Richard O’Reilly Brown, Ph.D., is the Exploratorium’s staff neurobiologist and curator of perception. He has degrees in neurobiology from Caltech and the UCSF School of Medicine, and was on the research faculty of UCSD’s Center for Brain and Cognition before joining the Exploratorium in 1998. Richard is an expert on perceptual demonstrations and illusions, with a particular focus on the art and science of color perception, and has taught visual perception at UCSD and the San Francisco Art Institute. In 2012 he was honored to win the first annual Richard Gregory Prize for his color studies at an international visual perception conference. At the Exploratorium, he has helped develop over 100 new interactive exhibits on diverse topics including optics, vision, hearing, attention, emotions, cognition, magic, biology, immunology and AIDS, the human body, and food.
Fisher Bay Observatory Gallery

Susan Schwartzzenberg, Senior Artist

Susan Schwartzzenberg is a senior artist at the Exploratorium where she leads the development of the Fisher Bay Observatory Gallery, a new space devoted to observing and noticing the bay and the city, both of which can be seen from the new Observatory's panoramic views. She has been a curator, photographer, designer, and artist, and served as director of media. At the museum she has participated in many exhibit development and web-based projects. Susan was a Loeb Fellow at the Harvard Graduate School of Design, and has taught at the San Francisco Art Institute, the California College of Art, and Stanford University. As a photographer and visual artist, she has received numerous awards, and has taken part in residencies and exhibitions worldwide. She is known for her public artworks including her recently opened public artworks at Stanford University and San Francisco’s McLaren Park.

Sebastian Martin, Ph.D., Co-curator of Bay Observatory Gallery

Sebastian Martin grew up in a small town in Germany with a rich tradition in toy making, and he attributes his interest in learning through experimentation and play to this early experience. Before coming to the United States, he studied earthquakes in the Chilean Andes, satellite imaging in the boreal forests of Ontario, and physics and math in Erlangen, Germany. He earned a Ph.D. in geophysics from the University of Potsdam. Throughout his studies, he retained a playful approach to science and research, and he developed interactive exhibits at Phenomenta, a science center dedicated to inquiry and direct contact with phenomena. In 2005 he joined the Exploratorium, where he found a happy symbiosis among science teaching, playing, and making things. A scientific content developer at the museum, Sebastian also enjoys teaching physics and interactive design at the University of California, Berkeley, and Stanford University. He is co-curator of the Fisher Bay Observatory Gallery.
Mary Miller, Director of the Wired Pier project

Mary Miller is the lead on the Wired Pier project, which will instrument Pier 15 with atmospheric and oceanic sensors to gather data on San Francisco bay and display the results in the Fisher Bay Observatory Gallery. She is a project director in the science learning networks group and is responsible for leading multidisciplinary teams in creating innovative and engaging content about current scientific research for the Exploratorium’s award-winning website and museum exhibits and programs. In her roles as a science writer and producer, Mary has dodged icebergs in Greenland, flown in a hurricane hunter through a Pacific Storm, and been diving under the ice in Antarctica. She is also a liaison to the scientific community on numerous education and outreach partnerships. As the director for a 5-year partnership with the National Oceanic and Atmospheric Administration, Mary facilitates collaborations between the two organizations to develop visualizations, media narratives, and interpretations of ongoing environmental research, including climate change and ocean and atmospheric research. Mary has a B.A. in biology and marine studies and a master’s certificate in science communication from U.C. Santa Cruz. She developed the media production track and teaches multimedia science journalism in the UCSC science communication program.

South Gallery/Tinkering Studio

Mike Petrich, Science Educator and Co-Founder of Tinkering Studio™

Mike Petrich is Director of the Making Collaborative at the Exploratorium, Mike is curious about how people develop personal and unique understandings of the world for themselves. More specifically, his interest in how environments can be designed to foster learning and encourage deep thinking led to a graduate degree in education design and technology, and ultimately to a leadership role within the Learning Studio, which develops the museum’s public tinkering activities. With a background in fine arts, filmmaking, and photography, he applies the act of careful observation to much of his work as a facilitator. Mike has been working at this for 20 years, with audiences as diverse as museum visitors, primary school students, Tibetan monks, prison inmates, and graduate school researchers.
Karen Wilkinson, Science Educator and Co-Founder of Tinkering Studio™

Karen Wilkinson is Director of the Learning Studio, which develops all the public tinkering activities. Karen sees her role at the Exploratorium as an advocate for making as a way of knowing. She believes deeply in studio pedagogy, and the ability we all have to think with our hands. As an undergrad working in environmental design, she came to see museums as places that recognize this approach. Karen started her museum career as a volunteer at the Science Museum of Minnesota, soon met people from the Exploratorium and other institutions, and quickly realized how deeply a museum philosophy resonated with her own. Now, years later, after pursuing graduate studies in education and technology, she is even more committed to the idea that constructionism is an incredibly powerful way of learning, and that aesthetics matter a great deal. These two ideas are often overlooked in more formal education settings, outside of kindergarten or graduate school. Informal learning spaces for making and tinkering offer people a chance to connect to their own learning in a deeply personal way, which is why she is thrilled to be able to work with such a delightfully quirky group of people in the Tinkering Studio. Together, they are working to develop experiences with art, science, and technology that are playful and inquisitive, and draw on the collaborative and participatory aspects that a museum environment can offer. Karen looks forward to seeing what develops in the coming years.

East Gallery

Kristina Yu, Ph.D., Director of the Living Systems Department

Dr. Kristina Yu is the Director of the Living Systems Department at the Exploratorium and curator of the East Gallery. She oversees the laboratory facility and staff that support the Exploratorium's unique collection of life sciences exhibits, and has curatorial oversight over the exhibit collection. In addition to making biology accessible to the museum-going public, and web audiences, Kristina also collaborates with researchers in the San Francisco Bay Area and is acquiring an archive of microscopic movies and images that are available on the Web. She attended UC San Diego and UC Santa Cruz as an undergraduate, and earned a Ph.D. in Molecular, Cellular and Developmental Biology from UC Santa Cruz.
Jennifer Frazier, Co-curator, East Gallery

Jennifer Frazier is a cell biologist whose current obsessions include plankton and data visualization. Jennifer has been at the Exploratorium since 2004, focusing on finding new ways to help visitors explore worlds they normally can’t see. Her projects include the Microscope Imaging Station and the Nanoscale Informal Science Education Network’s Visualization Laboratory. Before joining the Exploratorium, she created exhibits, multimedia, and documentary films at NOVA, the National Academy of Sciences, and several multimedia companies. Jennifer received her Ph.D. in cell biology from the University of California, San Francisco, where as an NSF and AAAS Fellow she used advanced imaging techniques to study polymer assembly during cell division. She has a B.S. in bioethics and genetics from the University of California, Davis.

Center for Art & Inquiry

Marina McDougall, Director, Center for Art & Inquiry

Marina McDougall, Director, Exploratorium Center for Art & Inquiry is a curator working at the intersection of art, science, nature and culture. Marina co-founded the Studio for Urban Projects and was the first Curator of Art and Design at the CCA Wattis Institute for Contemporary Art. She has been visiting curator at the MIT Media Lab, the Museum of Jurassic Technology, the California Academy of Sciences, and the Oakland Museum of California. Marina has 20 years experience organizing exhibitions and public programs, and started her career as a curator in the Exploratorium Cinema Arts Program. She teaches in the curatorial practice program at CCA.

See all Arts Program Staff Bios

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