Cassini's Dreams by China Blue

at the Venice Biennale

with Seth Horowitz and Lance Massey

ChinaBlueArt.com

Cassini's Dreams

Sound Installation, Paintings and Augmented Reality App

The Exhibition: Cassini's Dreams

Sounds of the cosmos have only been explored to a limited degree yet Saturn's rings have not been deeply explored for its sound. From Cassini's research China Blue and her team translated the raw data from the dust and ice particles combined with an artistic interpretation of what would be heard from Cassini's viewpoint as it traveled through and around Saturn's rings, to create the bases of this exhibition.

The exhibition consists of three parts, an installation, paintings and the Augmented Reality wayfinder to unveil what Cassini heard and saw during her decade long tour of Saturn before she plunged to her death.

The Installation

"Cassini's Dreams" is an interactive real-time installation inspired by the sonic interpretation of Saturn's rings. Presented at Palazzo Bembo is a 3D printed image of the Cassini spacecraft playing a laser over the rings of an inflatable model of the planet Saturn. This technique produces a real-time sonification from the appearance and texture of Saturn's rings using a unique laser-to-sound technology. What is heard is an acoustic translation of what Cassini detected as it swept around the gas giant and traveled above and below her rings, swooping down on moons to fly through icy plumes, above methane oceans, past shepherd moons guiding ring particles in their orbits while spying on propeller moons as they create delicate internal structures and waves.

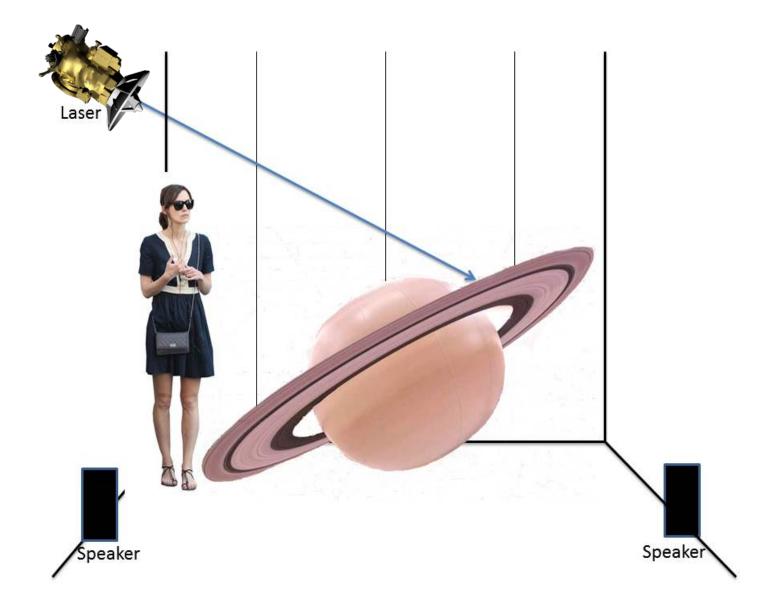
As is often the case with artistic investigations, the sounds became resource material for artistic outgrowth. Working with the composer Lance Massey, creator of the T-Mobile ring tone they produced the CD "Cassini's Dreams" to make audible this unheard band of the cosmos.



If you have a QR code scanner on your phone, just scan this image to direct you to the online album or go to this link at CD Baby: https://store.cdbaby.com/cd/chinablue5



Cassini's Dreams: The Installation



Cassini's Dreams: The Paintings

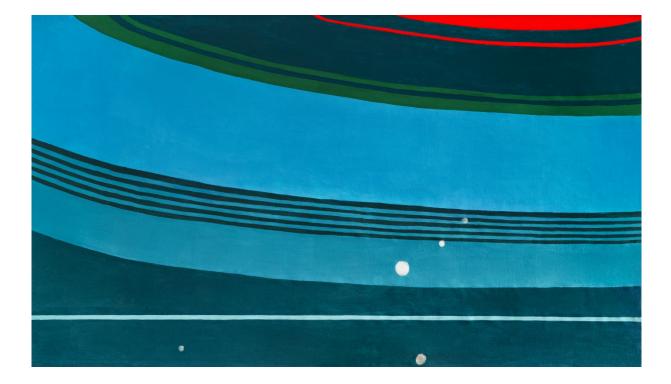
A selection of paintings based on Cassini's data provides the second component of this body of work.

From the 635 gigs of data that Cassini collected, a few small files of 50 kilobits each, were converted into the infrared spectrum of color. Although the infrared band exists everywhere and can be seen by some animals, it is invisible to humans. In research, it is used to reveal stunning information about the role of interstellar molecules in the formation of stars, planets and possibly even life.

This fundamental focus is evident in the usage of infrared light spectrum to depict an unseen reality of our world made visual in this series of paintings. These minimally realistic works reflect on the monumentality of the universe. By viewing a tiny segment of the cosmos makes us realize that even the smallest component is enormously complex.

Commissioned by the Canada Council of the Arts

Nested Halos Acrylic on Canvas, 47" x 81"

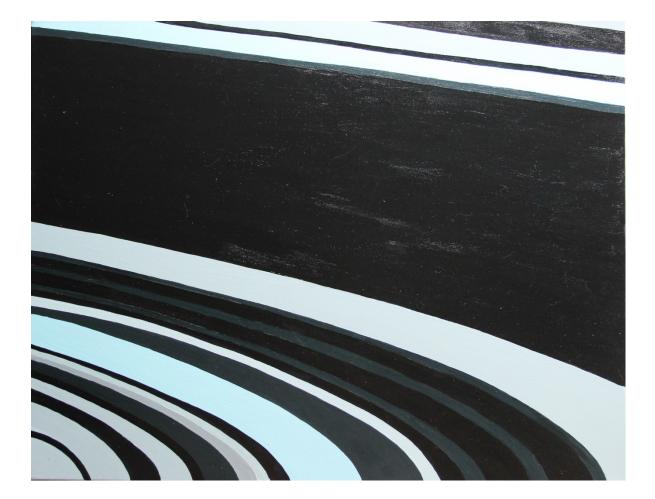


Blue Surround II

Acrylic on canvas, 22 x 28"



Blue Surround I Acrylic on canvas, 22 x 28"



White Stripes Acrylic on canvas, 22" x 28"



Finding Cassini's Dreams



The Augmented Reality (AR) app is a virtual Saturn system that will direct people to discover the exhibition at Palazzo Bembo if the visitor is in Venice at the biennale. If the viewer cannot attend, they can view and hear the installation on their smartphones.

The animation of Cassini's movement through the Saturn system scales on the screen relative to the distance of the user from the installation. The image will begin with a small bright dot at maximum range at the edge of Venice's city limits, to a close up perspective of the planet and its rings upon arriving at Palazzo Bembo. A selection of audio tracks from the CD "Cassini's Dreams" will increase in volume as the user gets closer to the installation.

Modes:

On site Wayfaring mode: In Venice, the app will use GPS/WiFi to locate the user and will establish direction and distance to the "Cassini's Dreams" installation in Venice.

Offsite simulation mode: For users not able to attend the exhibition (or traveling outside the area), the app will provide a simple mobile experience of the Cassini probe's flight through the Saturn system in concert with the audio from the CD "Cassini's Dreams."

To get the app go to the Google Play store, under Teamfirestorm is found the *Cassini's Dream* App https://play.google.com/store/apps/details?id=com.TeamFirestorm.Museum

Created by Team Firestone.

The Artist's View

Human perception and overcoming its limits are fundamental factors of China Blue's work. With her works the artist employs the installation format as her preferred exhibition form, providing visitors with an experience. In the installations, China Blue uses sound to articulate architecture, space, and time. Viewed from the vantage point of a sculptor, she imagines how sound fills and shapes space with this time based structure.

By incorporating sounds not normally audible by humans, reforming this temporal component to match the our hearing and creating paintings based on shifting the normally invisible infrared spectrum to colors that human can see, she has created a body of work based on listening for the unheard and visualizing the unseen in our world. She calls this philosophy of "Deep Perception," as the practice of shifting the unperceived into the perceptual realm. This is concept builds on Noam Chomsky's linguistic ideas of "Deep Grammar" and Pauline Oliveros' auditory explorations in "Deep Listening." "Deep Perception" derived from the muted viewpoints of cultural and artistic minorities whose ideas and perspectives are often ignored or forcibly appropriated in the name of mainstream aesthetics is the underlying catalyst for the artist's work over the last two decades.

Use of immersive environments encourages the formation of individual realities on the part of the viewers. The unique translation of space into time and form into vibration lets us listen into the interpreted sounds of temporal and physical forms.

With her paintings she uses a minimally figurative approach to reinterpret the form of Saturn and its rings based on data from both visible and the invisible spectra. Using the infrared color field as her palette she gives us visual access to another perceptual dimension often utilized in space science in the coloration of cosmic images. She then combines art science and technology, mixes materials, approaches and sources to add to an even greater range of assets to draw upon. In referencing this unseen aspect of our world, China Blue defines and highlights beauty in the unexpected.

This work unveils the crevices of the unheard and unseen to allow the artist and the audience to discover, explore and broadcast worlds that we are not aware of through her signature style: listening for the unheard and disclosing the unseen.

The Artist, Scientist & Composer

China Blue is an internationally exhibiting artist who has received three NASA/RI Space Grants. One is for recording the sounds of Saturn's rings and the acoustics created by NASA's Vertical Gun. The third is for recording their Vertical Gun. She is also the first person to record the Eiffel Tower in Paris and discovered for NASA the sounds in Saturn's rings.

As a pioneering internationally exhibiting artist in 2013 China Blue was the US Representative at Tokyo Wondersite's Experimental Art Fair and in 2008 at OPEN XI in Venice, Italy. In 2012 her exhibition at the Newport Art Museum "Firefly Projects" was nominated the "Best Museum Show Nationally by the International Association of Art Critics.

Seth S. Horowitz is neuroscientist with a Masters in psychology and Ph.D. in neuroscience from Brown University. A former professor in the Department of Neuroscience at Brown University, he has worked and published in comparative and human hearing, balance, sensory integration and sleep research. His research has been funded by grants from the NIH, the NSF, The Deafness Foundation, and NASA. He is the President and Head of Research and Development of The Engine Institute, a Rhode Island nonprofit dedicated to exploring the intersection of science, technology, engineering, music and the arts (STEAM). He currently works as a scientific consultant for fields ranging from 3D printing and VR to television, film and video games to biomedical innovation. His critically acclaimed book "The Universal Sense: How Hearing Shapes the Mind" published by Bloomsbury was released in September 2012, also available in Japanese, Hungarian, Korean, and in Chinese in 2018.

Lance Massey is the highly recognized T-Mobile ringtone composer. During his twenty plus year career, Lance's music provided the soundtrack for some of the world's most recognized brands including McDonalds, Pepsi, Toyota, IT&T, Diet Coke, and most visibly with his composing the T-Mobile ringtone. Lance has also composed the music for the spoken word opera "Blue Gods," created the world's first commercially viable audio morphing program, and produced and worked with artists such as Julee Cruise, Talia Paul, Richard X. Heyman, Jesse Malin and Masabumi Kikuchi.

Playing the Universe by Lilly Wei

China Blue's multidisciplinary installation *Cassini's Dreams* (2019) is a remarkable visual arts and sound project that is partly scientific and partly poetic. Intrigued by sound as a medium that is still underexplored, she has undoubtedly been influenced by the experimentation of early avant-gardists such as John Cage, as had many subsequent artists. For China Blue, however, it was the experimental composer and electronic music pioneer Pauline Oliveros (1932-2016) whom the artist felt closer to. Today, sound is increasingly evident in a range of creative practices, no longer outside the mainstream, as artists, ever more expansive in their points of view, strive to realize works that shatter former boundaries across the spectrum of cultural production. As technological innovations are added to the mix to become more and more immersive, the results are perhaps the most complete examples of the *Gesamtkunstwerk* to date.

China Blue, a pioneer in her own right, has made sound art works for over two decades. She widened the scope of her investigations when she received two NASA/RI Space Grants a few years ago. Her husband, Seth Horowitz, is a neuroscientist whose expertise also includes acoustics, robotics, data actualization, and more. Through intensive, exhilarating conversations with him about his research, she was further inspired to push her projects involving "hidden acoustics" towards the more scientifically oriented, in particular toward data sonification as a way to identify space and place—without foregoing the imaginative, the intuitive.

She became riveted by the exploration of Saturn and its icy moons jointly undertaken by the National Aeronautics and Space Administration (NASA) and the European Space Agency, called the Cassini-Huygens mission. NASA had developed a robotic spacecraft for the Saturn mission that it named Cassini, after Giovanni Domenico Cassini, a French Italian astronomer who discovered four of Saturn's moons in the 17th century. (Huygens was a probe to explore Titan, one of Saturn's great moons, created by the European Space Agency and named after Christiaan Huygens, a 17th century Dutch astronomer who discovered Titan). Cassini, the size of a mini-bus, was sent to learn more about Saturn and its multiple moons and magnificent rings (which in actuality is more of an annulated disk of varying densities and brilliance, with thousands of narrow gaps and ringlets). It was designed to last roughly four years upon reaching its goal but it far exceeded its expiration date (like the prodigious twin spacecraft Voyager 1 and 2). It took Cassini seven years to reach Saturn and then orbited the planet for 13 years. During the spacecraft's hundreds of flybys over Saturn, it took nearly half a million images that it sent back to Earth, a billion miles away, providing a trove of unexpected information as well as breathtaking images of that most spectacularly beautiful of planets, correcting misconceptions, resolving former mysteries and changing the way we think about the solar system.

In the very last phase of its mission, Cassini angled through the gap between Saturn and the planet's innermost ring, providing extraordinarily clear views of the rings and the planet itself before ultimately plunging downward toward it like a dazzling, spent star. As planned, it disintegrated in Saturn's atmosphere to end its journey on September 15, 2017, 20 years later, mourned by many.

Always speculative, China Blue asked herself, in thinking about the mission, how Saturn's rings might sound (as she had asked herself how the Eiffel Tower might sound, among other sites and objects not usually thought of acoustically, as "instruments"), a query that resulted in a riveting 11-track CD called *Cassini's Dreams* (2018), made in collaboration with Horowitz and composer Lance T. Massey. At the edges of human perceptual faculties and beyond, she likens "listening to the unheard with seeing the unseen. It brings areas outside of human range into a field that we can comprehend." When asked what the source of the data she used was, the artist explained it came from the rings themselves, from data sent back from Cassini that was correlated and converted into sound by means of a complex and novel method. The rings are made primarily of water ice and small particles of rock, and as these materials streamed around the periphery of the planet, they have the potential to collide. Caught in the gravity field of the planet, each particle has its own motion, its own events, as waves of movement rippled through the planet's rings and billions of particles. Over time, the sound field that is produced changes; "it isn't a fixed keyboard," the artist said.

So, truly music from space (with titles such as *Cassini's Dreams, Cloudboarding, Saturn Remains*), the data was extracted, consolidated and translated into pings and pongs, whirrs and clicks of different tones, frequencies and duration, the sound clipped, brushed, floated, reverberating, the superfluous noise edited out to create a haunting soundscape of a specific place in space and time. The resulting tracks have an eerie, ethereal, echoing beauty and their own hypnotic lyricism. The compositions recall Brian Eno's space music from the 1980s, his inspired by the Apollo 11 landing but, unlike *Cassini's* tracks, not based on actual data.

The visual elements of the installation are centered upon a large suspended model of Saturn in a dark gallery hung with some paintings of Saturn's rings, executed in infrared colors. A 3-D model of Cassini housing a laser to simulate the passage of the actual spacecraft around the planet is another element. The technology used is a laser-to-sound conversion in which the image captured by the laser is transformed into sound (the same method she used to discover the sounds of Saturn's rings). The imagery of the rings is transformed into sound in real time, and mixed with the audio from *Cassini's Dreams*, the CD, adapted for the installation, the sound projected through speakers.

I thought of David Byrne's project, *Playing the Building*, conceived in 2005 but presented in different iterations since then, predicated on the architecture of the selected construction as the instrument. In *Cassini's Dreams*, China Blue might be said to play the universe--or perhaps beyond—composing a song about origins, evolution and ultimate destiny.

By Lilly Wei

Lilly Wei is a New York-based art critic, independent curator and journalist whose area of interest in global contemporary art.

Beyond Objecthood: Negentropic Art by China Blue by Stephanie Jeanjean In the early 2000, I met China Blue in New York and heard her speaking about sculpture in ways I had not considered sculpture previously. As a former student, at Hunter College, of minimal and post-minimal sculptor Robert Morris, China Blue had developed an attention to space, and more specifically to the space surrounding sculpture; more than to the sculpture or the object itself. How was that space shaped by an object? How was the viewer's impacted by that relationship?

At the time, also, China Blue spoke about negative and odd physical spaces that could be fixed and how to improve our relationship with them. She started developing an artistic Feng Shui, which broadly inspired by her Chinese background, could correct inhabited spaces, exhibition spaces among others, and heal viewers. From that angle, China Blue expanded her investigations, from object and space, to sounds, and started asking: how does sound look like? And how can sound shape spaces and viewer's experiences?

Intrigued, in 2004, I invited China Blue to work on two solo-exhibitions of her work simultaneously at l'Atheneum and Interface in Dijon, France. At Interface—an alternative art space run by former art students from the National Beaux-Art School—, she presented among other works, *Mikey vs Fabio* (2004), a sound piece based on the recording of a table tennis game. *Mikey vs Fabio* spatialized and somewhat materialized, through a surround sound system, the impact sounds of an invisible ping pong ball on the walls of a totally empty space; animating it. The space where the piece was located was a passage, a rather narrow corridor rarely used by other artists who had presented works at Interface—not only because it would not fit the scale of most works to allow a comfortable viewing experience, but also because it did not even feel appropriate for a viewer's pause; yet, this space, also appropriately reminded of the proportions of a ping pong table. There, like in many other spaces and corners at Interface—a beautiful Victorian-style private apartment in the city historical center of Dijon—, China Blue created pretexts for stops, allowing her sound works to guide the discovery of the physicality and specificities of the architectural spaces.

At l'Atheneum—Bourgogne University Cultural Center for students, located in a modern concrete building on campus, in the outskirts of the city center—, China Blue also tackled the difficulties presented by another space of passage: the exhibition space itself. The exhibition room had been intentionally, but unfortunately, positioned between the building entrances (where was there

was also the student's bar) and the computer room; in order to encourage (or oblige) students to see art on their way from the bar to the computers. To combat the inefficient dynamics of the art space, China Blue built a large structure at the center of the exhibition room that literally interrupted the students' path. The construction was made of two pairs of interrupted walls, creating doors at each corner. Then, using sound of wind chimes, warm orange-yellowish paint and neon lights, as well as comfortable seats, she created within these walls an inviting space for students' relaxation. Those visitors who instead decided to challenge the artist's invitation for a pause, and ventured around the walls, saw drawings based on the room floor plans. These were populated with lines and arrows, suggesting movements and rhythms, materializing the circulation of sounds and energy inevitably surrounding them; whether they were aware of them or not.

In Dijon, not only did the individual pieces focus on creating connections with the viewer (and, beyond, with the larger environment surrounding the viewer), but the entire project titled *Fluid Paths* also intended to force connections—some formal, aural, some structural or relational—, also between both spaces. Even if l'Atheneum and Interface shared an overall common goal of promoting contemporary art, they were doing so with very different staff, audience, purpose, means, and ultimately philosophies. Throughout time, I understood that China Blue's work would bring together what seems disjointed, even sometimes irrelevant, as long as they could complement and improve one another.

In reverse, China Blue has also engaged in her more recent works with entropic and maybe necrotic prognoses and dynamics. With her interactive sound-light installations *Fireflies Project* (2011), *Fireflies Grove* (2012-15), and *8 Bit Crickets* (2013), she collides nature, man, and culture. She presents in these installation hordes of small electronic insects, equipped with motion sensors, reacting by blinking and chirping to the presence of an audience, and variably depending on the quantity and position of it. Sometimes also, the viewer would activate the simulated insect colonies with flashlights.

Here, China Blue shows a denatured relationship in the form of a playful, but senseless, and unproductive communication. She is right to insist that man, technology, and nature co-exist and are interconnected in invisible ways; and we are all aware as well how nature is currently suffering from mother earth's abusive exploitation, resulting in an increasingly unbalanced eco-system shortly frightening just everything as we have known it.

China Blue's latest endeavors have brought her to expand her field of artistic practice, beyond earth's ground and man's life experiences, to larger unheard aural phenomena. For example, in 2007, she captured the energy of Paris by recording the sonic vibrations of the metallic structure of the Eiffel tower. Or similarly, in 2009, when she recorded NASA's Vertical Gun—conceived to simulate meteorite impacts in deep space. *Cassini's Dreams*— comprised of a sound piece installation and of paintings, which is currently presented at the Venice Biennale (2019)— is from this same body of work. The sound piece results from the sonification of the latest high-resolution images taken by Cassini of planet Saturn's rings, combined with an audio piece. It also includes sounds from propellers, dusts, and ice, as China Blue specifies; in order to direct our attention onto the details and anomalies of some of the largest and most mysterious invisible astral events that surrounding us. If another proof is needed, consider her paintings (also on display at the Venice Biennale) which, based on Saturn's rings, are made in infrared color spectrum. "The infrared range is a field that humans cannot see but exists everywhere" she explains.

Beyond objecthood and what is visible or accessible to us, up to the eternal void of the entire universe, there is much to hear and to understand, as China Blue demonstrates. In her negentropic world, nothing is still nor silent, the void is filled with the sounds of incommensurable invisible forces that can be heard by those who listen to them.

By Stéphanie Jeanjean Ph.D., a New York based art historian, curator and translator

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