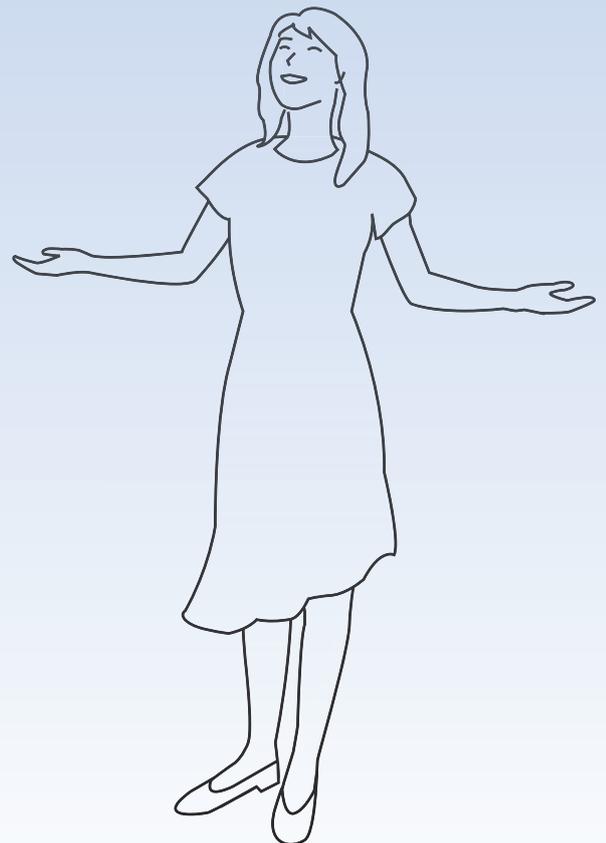
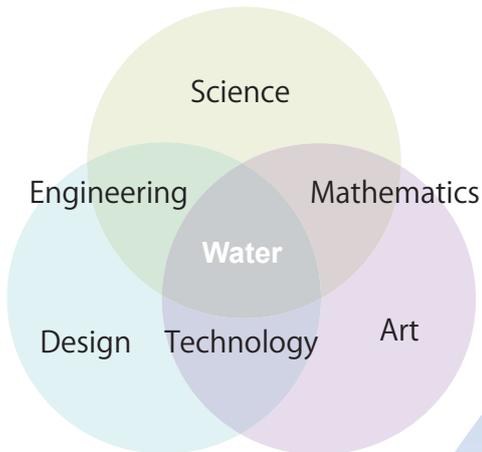
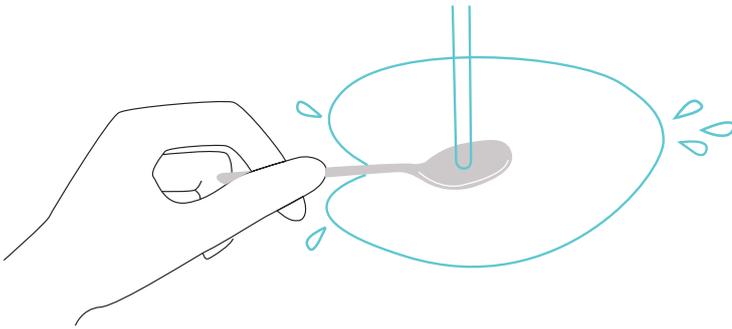


# FOUNTAINS

1994 A story  
begins with a single spoon

Yuki Sugihara, a 20-year-old student, was fascinated by the wonder and beauty of water. In her kitchen, running water hit a spoon, and a thin, round, transparent film of water formed. Then she studies fountains around the world and is now creating her own fountain as her life's work.

 **YouTube** <https://youtu.be/LIsC9CuHt8Y>



**ATELIER OPA**  
Original Products & Architecture

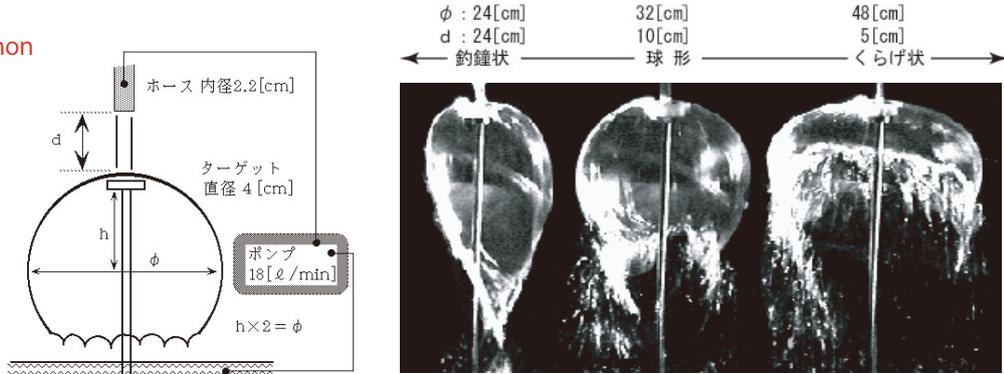
# FOUNTAINS

## Principles and Development

### Water film fountain

The hemispherical water film formed when running water hits a circular flat plate is called a water bell. It was first recorded by the French physicist Félix Savart in 1833.

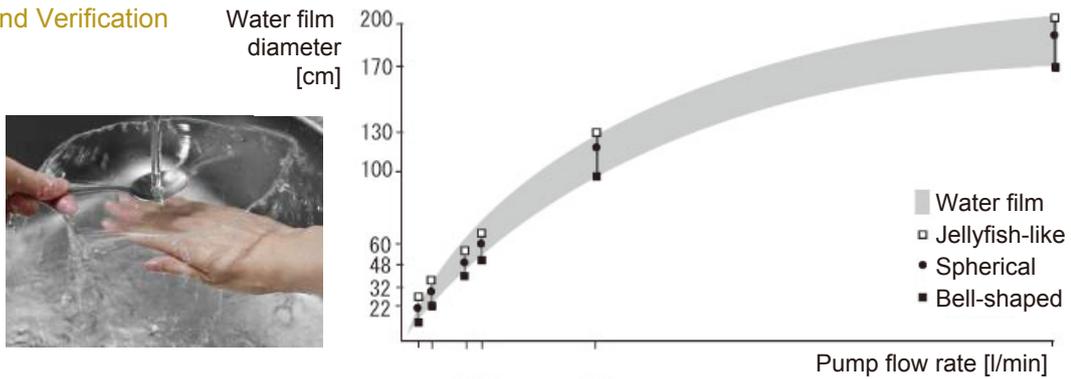
### Water Bell Phenomenon



### Flow Rate and Diameter

In 1994, inspired by the water film on a spoon, we started development, and by 1999, by increasing the pump flow rate, I expanded the diameter of the dome to 8m and began researching an "immersive water display" where the head or entire body could be immersed inside.

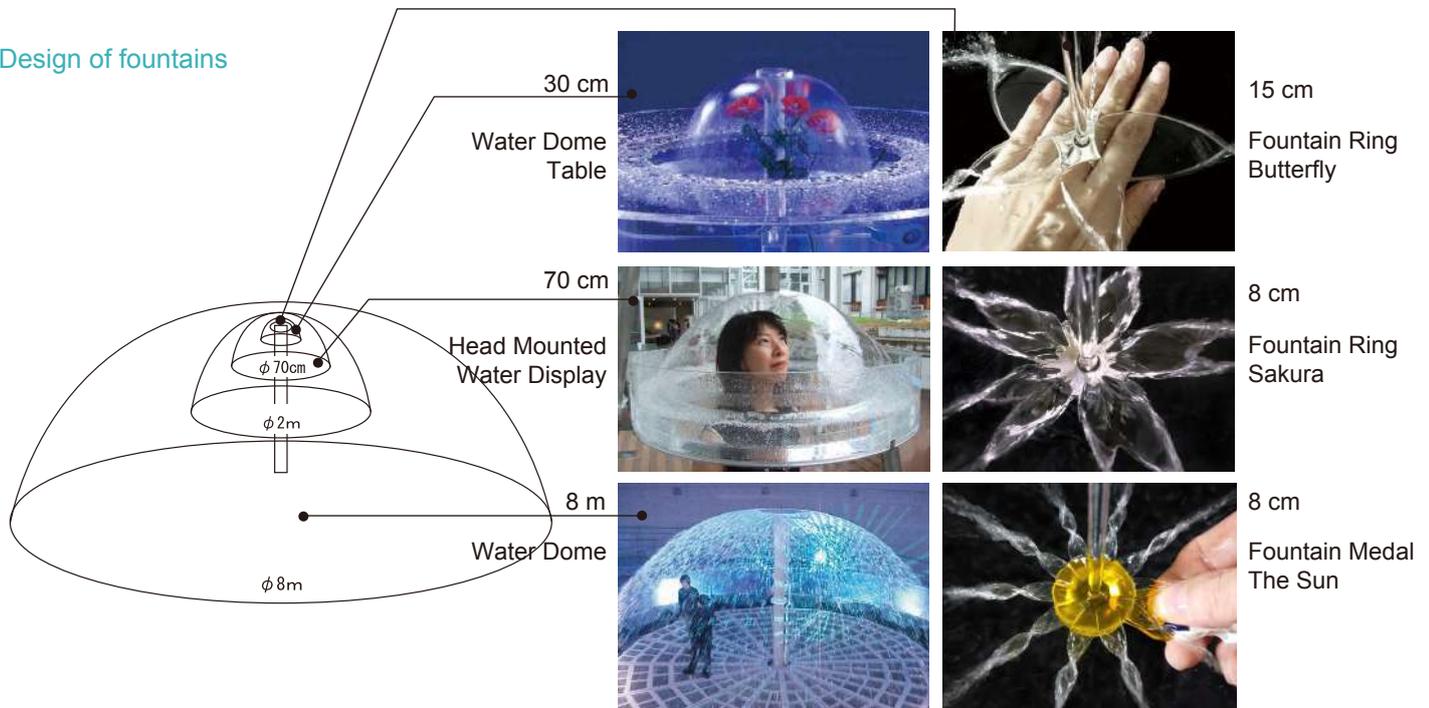
### Experiments and Verification



### Size variations

We offer a variety of fountains in different sizes. Considering the variety of hydrophilic spaces, we are developing products that generate tables with water films and fountains that function as rings or medals.

### Design of fountains



# FOUNTAINS

## Research Plan

### 3D design

The fountain's parts are made of acrylic, stainless steel, and 3D printed materials. In addition to casting silver, it can also be mass-produced using cutting and injection molding.

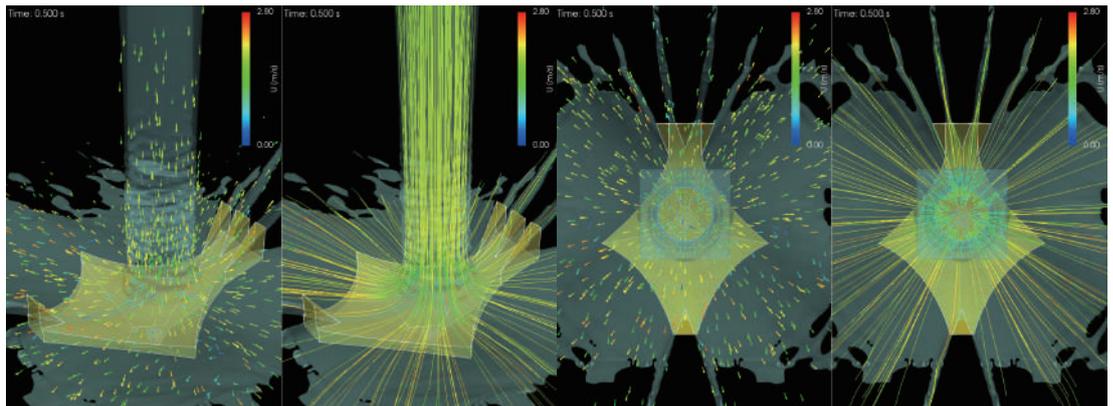
Function and design, design and technology



### Fluid mechanics

The fountain was analyzed using computational fluid dynamics (CFD). The water falling on the fountain ring is 2.2 [m/s], the water film of the butterfly spreads at 2.8 [m/s], and the water film is laminar. There have been reports on the stability and breakup of liquid films, but the branching and twisting of this research is novel.

Air and water, multiphase flow analysis

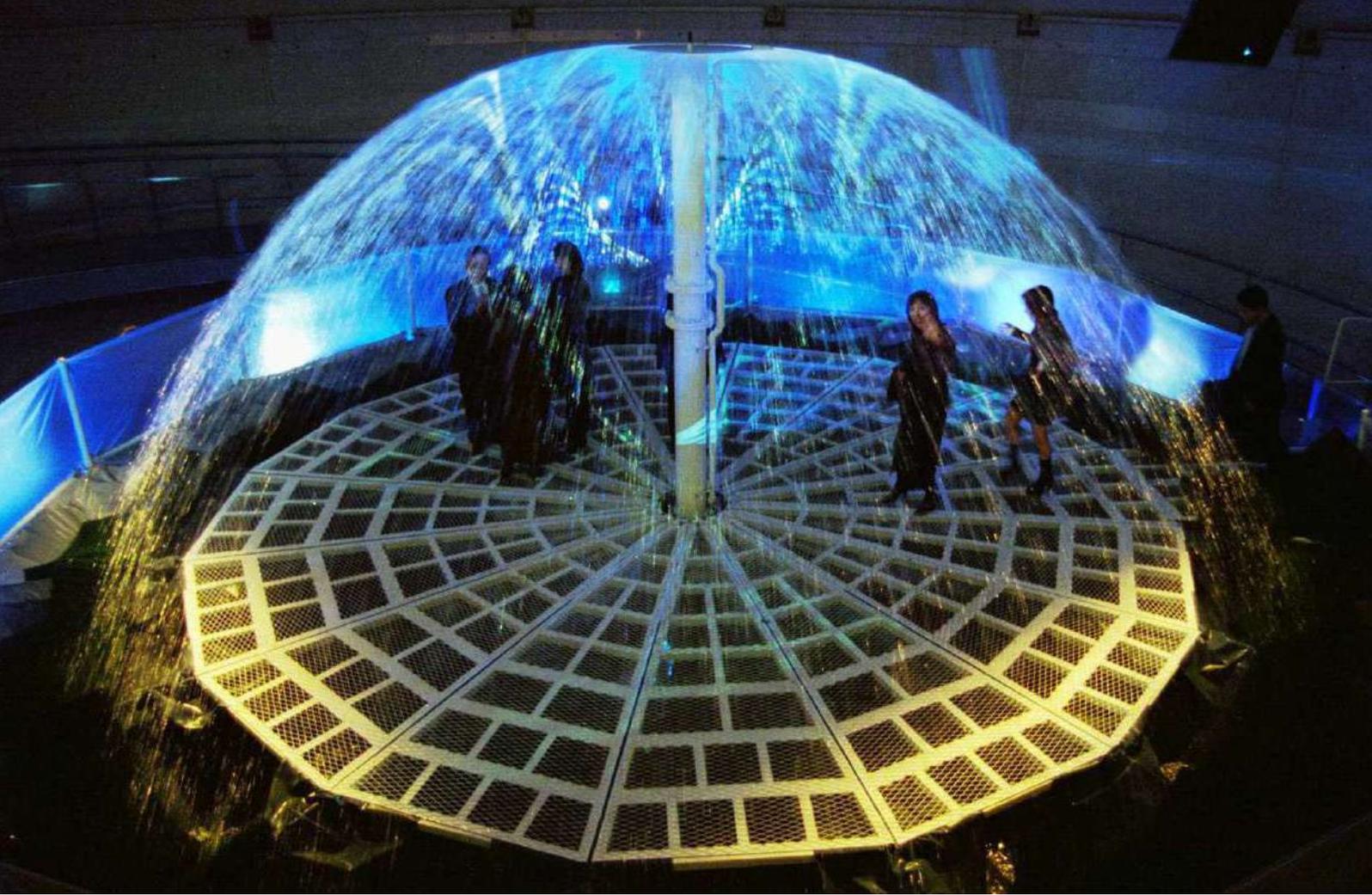


### STEAM products

The various flowing water designs stimulate the senses and curiosity of people of all ages and nationalities. Based on STEAM (Science, Technology, Engineering, Art, and Mathematics), Sugihara provides fun and mystery.

Clarifying natural phenomena, science, and physics





# Water Dome Project in Spiral 1999

13 m × 11 m × 4.2 m  
Steel, water, pipes, pump, projector

Client: Shachihata Co., Ltd.  
Cooperation: IHI Corporation, JATO Co., Ltd.

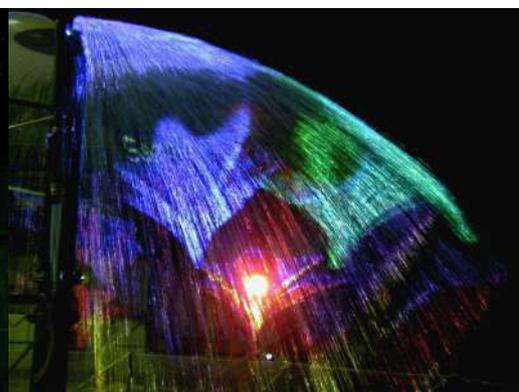
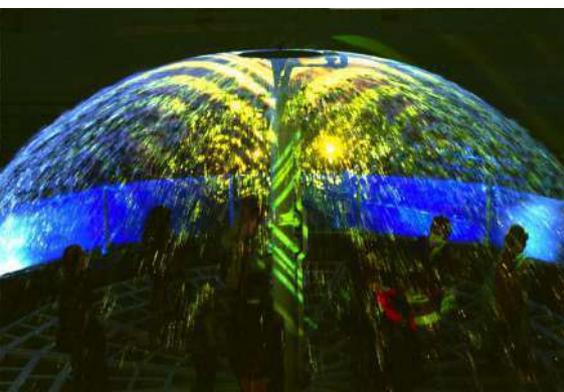
This work won the Grand Prix of a contemporary art competition that awarded 10 million yen for development. Several tons of pump flow rate and various pipe diameters were experimented with during the six-month production period. The ceiling of the water membrane is transformed into parabolic water droplets, creating a dome-like transparent screen suitable for projection mapping. The wind blowing up from underfoot, the view through the transparent water, and the sound of rain echoing from all directions created a cool, floating sensation as if standing behind a waterfall. 2000 people experienced the work, and it brought fresh impressions.

The 6th Japan Art Scholarship Grand Prix Exhibition  
October 30-November 10, 1999 (Aoyama Spiral, Tokyo)



YouTube

<https://www.youtube.com/watch?v=m8SzXk8FQz4>



# Water dome project



## Water Dome Project in Yokohama 2003

3.4 m x 8 m x 11 m  
stainless steel pipe, water, hoses, pumps, lighting

Client: Mitsubishi Estate Co. Ltd.

A 7-meter-diameter interactive fountain was installed in the atrium of the Yokohama Landmark Tower to commemorate the tower's 10th anniversary. 77,352 people visited the dome in one month, with an average of 2,600 people entering the dome daily. The dome was relocated to the atrium of Fukuoka IMS, and grape-colored lighting was used to create an autumnal atmosphere.

## in Fukuoka

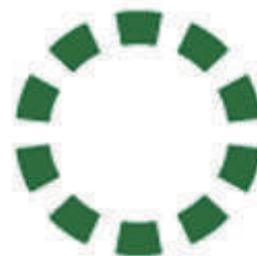
July 24-August 24, 2003 Yokohama Landmark Tower  
September 17-October 9, 2003 Fukuoka IMS





# MIZUNOVA

## Aichi Expo 2005



**EXPO**  
2005 AICHI  
JAPAN

4.5m x 10 m x 10m  
Stainless steel pipe, water, hose, pump, projector, lighting

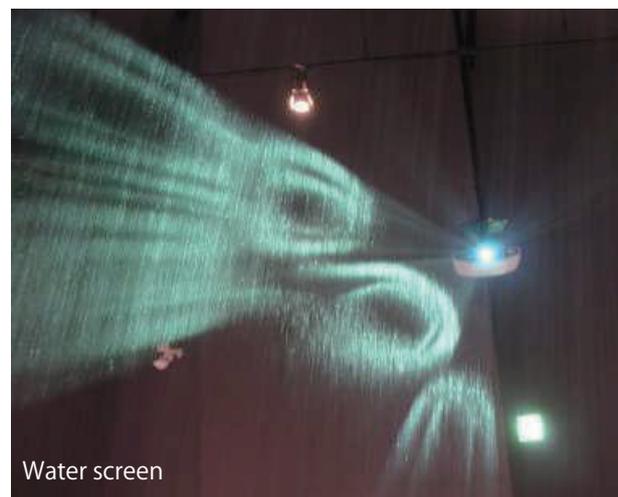
Client: 9 prefectures in the Chubu region of Japan  
Interactive fountain, 7m diameter

Based on the Expo theme "Nature's Wisdom," the coexistence of humans and the environment was expressed as a water oasis. Images of animals and plants gathering by the waterside were projected and lit up with LED lighting. The water dome symbolizes the river that connects nine prefectures in the Chubu region, including Aichi and Gifu, and the circulation of water in the global environment.

March 25th - September 25th, 2005  
Chubu Millennium Symbiosis Village Pavilion  
Artist: Yuki Sugihara  
Planning and Produced by: Spiral  
Design: Takematsu Koji, Lighting: Takeuchi Misao  
Video: Fukuda Yasutaka

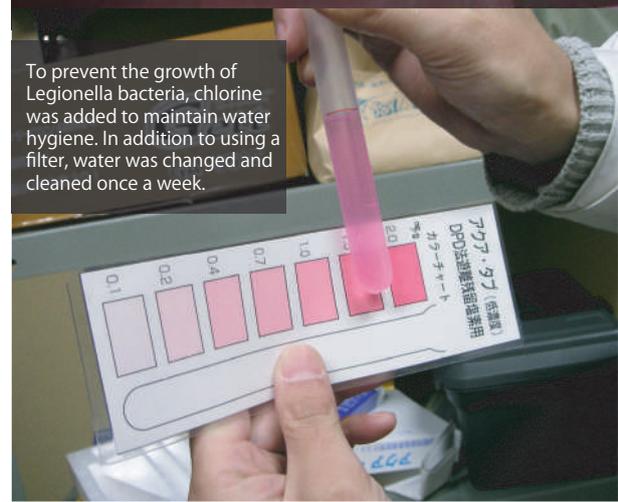
Cooperation: Zenken Co., Ltd.,  
Matsushita Electric Works Co., Ltd.,  
Nomura Kogei Co., Ltd., Wacoal Co., Ltd.,  
Actio Co., Ltd.

*Questioning the sustainability of  
the water environment*



Water screen

To prevent the growth of Legionella bacteria, chlorine was added to maintain water hygiene. In addition to using a filter, water was changed and cleaned once a week.





# WATER DOME 2007 - 2009

3.4m x 8m x 11m

Stainless steel pipes, water, hoses, pumps, power generators, projectors, lighting

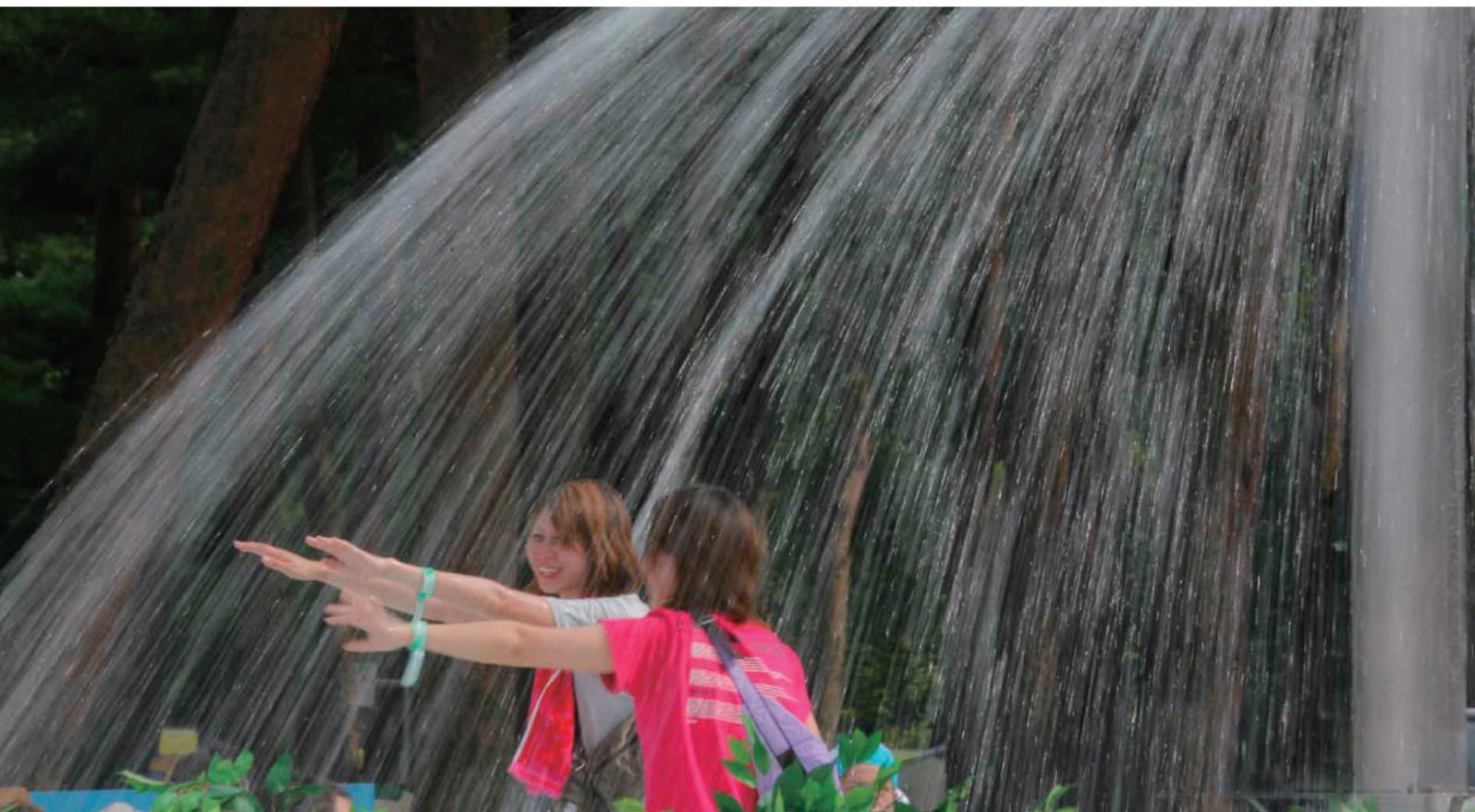
Client: Japan Tobacco Inc.  
Artist: Yuki Sugihara

Rock in Japan Festival  
Hitachinaka Park, Ibaraki  
August 3-5, 2007  
August 1-3, 2008  
July 31-August 2, 2009

Rising Sun Rock Festival in EZO  
Ishikari Bay New Port Tarukawa, Hokkaido  
August 17-18, 2007  
August 15-16, 2008  
August 14-15, 2009

Design: Toshihiko Suzuki  
Photography: Sadami Saito

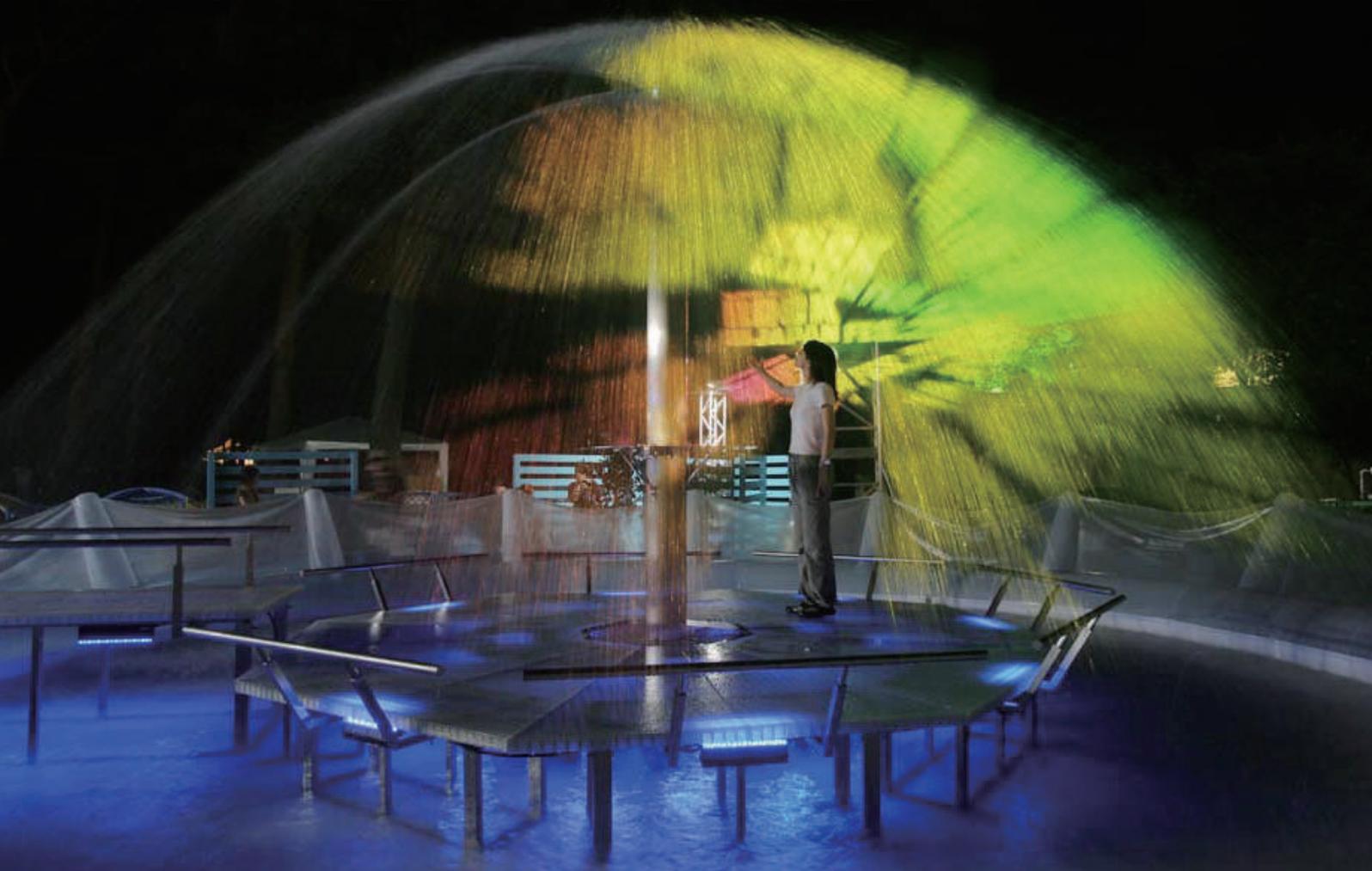
 **YouTube** <https://youtu.be/qpYLIyb2I7Q?si=JTL1zGKZX1403GnU>



# How to set up

Instead of tent materials, the dome space was created by hygienically filtering rainwater collected in the park. It was designed to be disassembled and reassembled so that it can be moved with a 4-ton truck. A base made of FRP resin is built in the center of the pool, and stainless steel supports are erected. The pool inflates in 30 seconds when air is pumped in, and the water dome is complete when 2 tons of water is poured in. Removal can be completed in half a day by draining and dismantling it.







# Head Mounted Water Display 1996 - 2005

2 m × 1.8 m × 1.8 m

Stainless steel pipes, water, hoses, pumps, lighting

A 70cm diameter water film that looks as if it is made of plastic. When you put your head inside, a space that seems wet but doesn't expand. It is a small otherworldly world surrounded by the sound of water dripping onto the surface. When lit, it reflects the palm of your hand like a concave mirror, and when an image is projected, it reflects the image around it. It is a space that calms crying children and lifts the spirits of adults. It has become a popular meeting place at the ticket gates of Tokamachi Station in Niigata, department stores in Kyoto, and at Laval exhibitions in France.

 **YouTube** <https://youtu.be/aj1hlvVlxe0>

 **YouTube** <https://youtu.be/GrEXnxTqf4A>





# Head Mounted Water Display

June 30th - July 10th, 1998. Philip Morris Art Award Final Selection Exhibition, Tokyo International Forum

March 1999. ISMR' 99 1st Mixed Reality Symposium, Pacifico Yokohama

August 1999. Siggraph '99, Los Angeles, USA

May 16th - 18th, 2001. Laval Virtual, Laval, France

April 26th - June 16th, 2002. New Media New Faces 02 Exhibition, NTT InterCommunication Center [ICC] Shinjuku

July 20th - September 7th, 2003. 2nd Echigo-Tsumari Art Triennale, Tokamachi Station, Niigata

November 21st - December 30th, 2002. Kyoto Kintetsu Department Store, Kyoto

2005 July. Tohoku University of Art and Design Open Campus

 **YouTube** <https://www.youtube.com/watch?v=FH6jVrzfv1c>

# FOUNTAIN RING



2015-2020

26 mm× 34 mm×27mm  
Silver, gold plated, rhodium plated,  
sapphire, ruby, diamond

Water membrane diameter 8-20cm

The Fountain Ring is a portable fountain. It is a ring made of silver plated with rhodium. When water from a tap is applied to the central gemstone, a transparent water membrane in the shape of a butterfly, spider or cherry blossom flutters on the back of your hand. When water is not applied, it decorates your fingertips as a mysterious fountain. It won the Lexus Design Award in 2013 for its "maximum effect with the smallest device," as evaluated by Paola Antonelli, curator of the MoMa Museum of Modern Art in New York. It is chosen as a gift that promises surprise and fun for birthdays and anniversaries.





FOUNTAIN  
RING Butterfly



Sakura



Spider



Snowflake



The Sun

# FOUNTAIN RING



## Exhibitions

- April 10-14, 2013 Lexus Design Award 2013, Parmanente Museum, Milan, Italy
- April 12-17, 2016 Lexus Design Award 2016, Milano Salone, Spazio Lexus, Milan, Italy
- May 13-November 26, 2017 Venice Design Exhibition, Palazzo Michiel, Venice, Italy

## Media Coverage

- October 15, 2015 "WBS World Business Satellite" 11pm, TV Tokyo
- December 1, 2015 "Ariyoshi Hiroiki no Daretoku!?" 11:00pm, Fuji TV
- March 26, 2016 "Design Code" 11:06pm, TV Asahi
- May 28, 2019 "Burari Tochuu-desha no Tabi" 9:25am, Nippon TV
- January 22, 2019 "Shakin" 7:00am-7:15am, NHK Educational TV



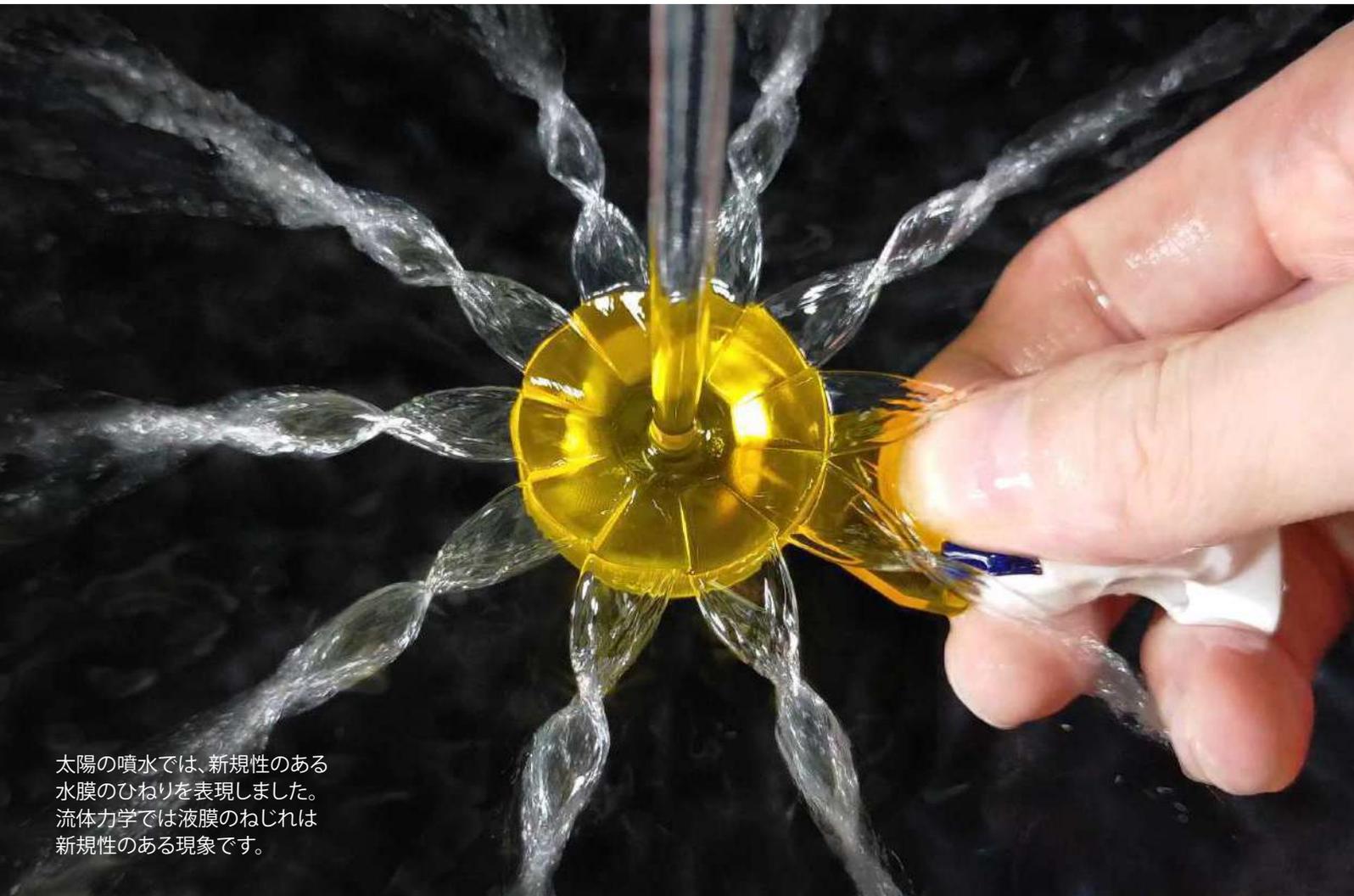
# FOUNTAIN MEDAL



## 2021-2025

2.8 cm x 4.4 cm x 1 cm  
Clear acrylic, plastic, ribbon, water

You can enjoy a fountain at home while staying at home during the COVID-19 pandemic. When tap water hits the transparent yellow acrylic fountain medal, the triangular and fan-shaped bumps on both sides form a 5cm diameter sun and a 7cm butterfly water film. In the sun fountain, 10 petal-shaped water films twist like glass-work to create a new surface. In the butterfly surface, V-shaped water film wings and two antennae appear. A sense of balance and concentration are required to create a fountain evenly on both sides. Orders are placed on demand, and the medal part is produced by DMM using a 3D printer. Compared to the fountain ring, it has a flat shape that is easy to carry and easy to mass-produce.

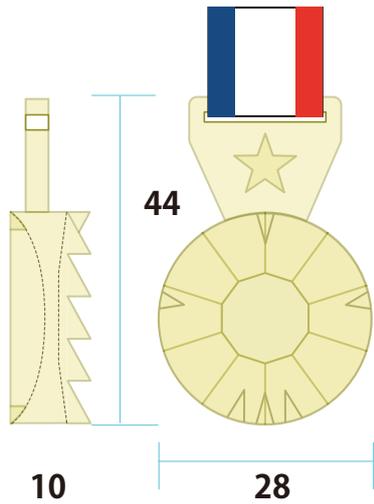


太陽の噴水では、新規性のある水膜のひねりを表現しました。流体力学では液膜のねじれは新規性のある現象です。



Fountain Medal Video (1 min)  
<https://youtu.be/Wk0wYR4Uyvg>

Ribbon length:  
 Circumference 72cm x width 15cm  
 Medal size: 2.8cm x 4.4cm x 1cm  
 Aluminum packaging: 9 x 6 x 1.8cm  
 Detachable buckle: 1.9cm x 3.8cm  
 Sales: Online sales  
 URL: [atelier-opa.com/medal.html](http://atelier-opa.com/medal.html)

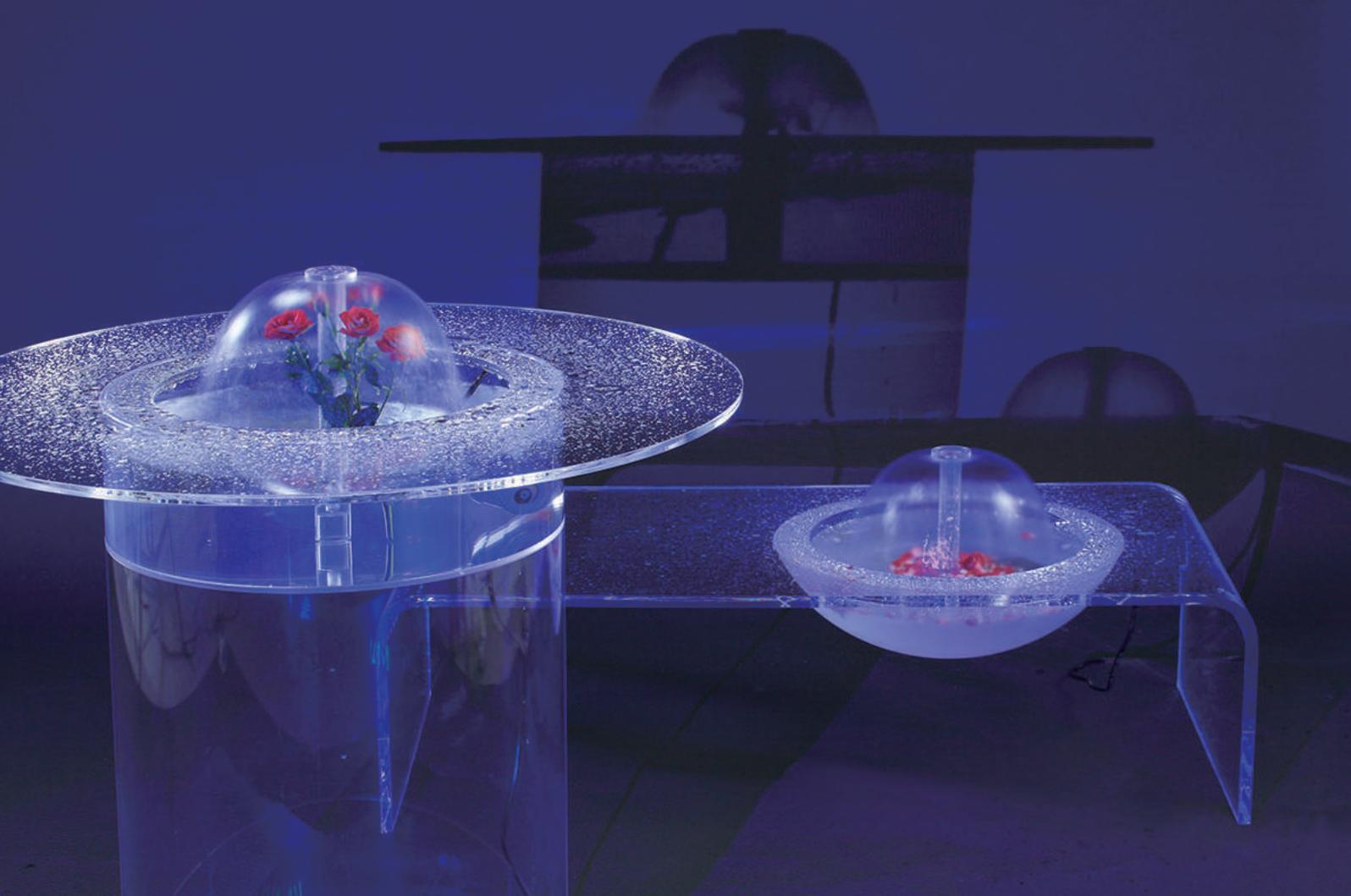


While playing in the water of the butterfly fountain, you can have fun forming two antennae and V-shaped wings evenly and balanced on both sides.



Fountain Medalists (2 min 40)  
<https://www.youtube.com/watch?v=Alr35cF-23E>



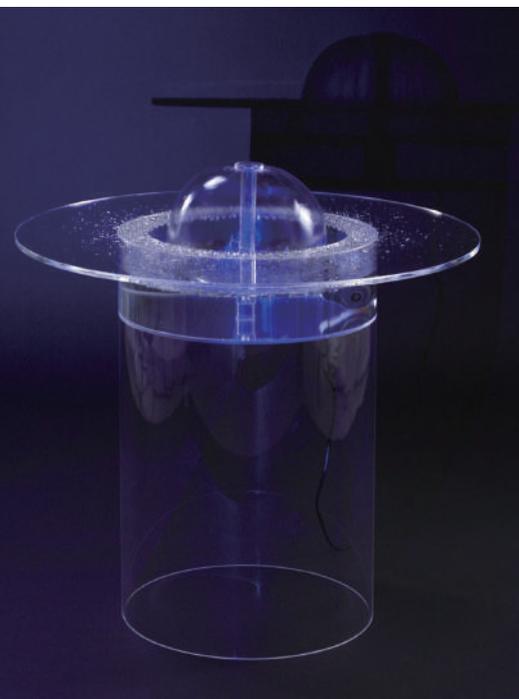


# Water dome table 2007

800 mm× 800 mm×712 mm  
490 mm× 1050 mm×300mm  
Acrylic, Submersible Pump

Client: Spiral, Take Art Collection

The Water Dome Table is a table that stores water in the center of a transparent tabletop and circulates the water in a dome shape to create a fountain. You can enjoy the sound of the water and its transparency on a regular basis, and at parties, you can use it to arrange flowers or cool bottles as a wine cooler. This compact indoor water feature creates a relaxing place like a patio.





# Jellyfish Bearings 2006

500 mm× 1200 mm×700mm  
Hose, pipe, water, Swarovski, acrylic aquarium

Client: NSK Co., Ltd.



It is an organic robot that represents a red jellyfish or a moon jellyfish. The water film is illuminated by LED lighting, and when four high-precision actuators at the bottom of the pool are driven up and down by program control, it sways gently, captivating the viewer.

November 22-26, 2006 NSK Bearing Art Exhibition Spiral, Aoyama, Tokyo  
Semicon Japan 2006 NSK Makuhari Messe  
Techno Frontier 2007 NSK Makuhari Messe  
Techno Frontier 2009 NSK Makuhari Messe





## Yuki Sugihara Ph. D.

Born in Tokyo in 1974. Fascinated by water films while studying at Musashino Art University, she began creating fountains. In 2001, received her doctorate from the University of Tokyo Graduate School. In 2002, studied at the International Cité des Arts in Paris as a young artist from the Pola Art Foundation.

She has presented 11 experiential fountain water domes in Japan, including the 2005 World Exposition, Aichi, Japan. From 2003 to 2008, an associate professor in the Department of Product Design at Tohoku University of Art and Design. She has been the representative director of ATELIER OPA Co., Ltd. since 2007. For her research and development of fountains, Grand Prix in the 6th Japan Art Scholarship in 1999, Musashino Art University Paris Prize in 2001, Silver Prize in the Design for Asia Awards in 2008, a prizewinner at the Seoul Design Olympiad in 2008 and I.D. magazine Annual Design Review in 2008, awarded Lexus Design Award in 2013 and Silver Prize in the A'Design Award in 2016, an honorable mention in the 10th Snow Design Award in 2019.



As the head of a design studio in Tokyo, she produces designs and architecture for various clients and has received numerous awards, including the 2022 Prize Designs for Modern Furniture + Lighting Award, 2022 Green Good Design Award, 2020 Kyoto Design Award, and 2020 D&AD Awards graphite pencil. She has collaborated on competitions and exhibitions with Italian universities and companies, published books, and continues to participate in international exchanges. She aims to contribute to STEAM education through her water works.

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