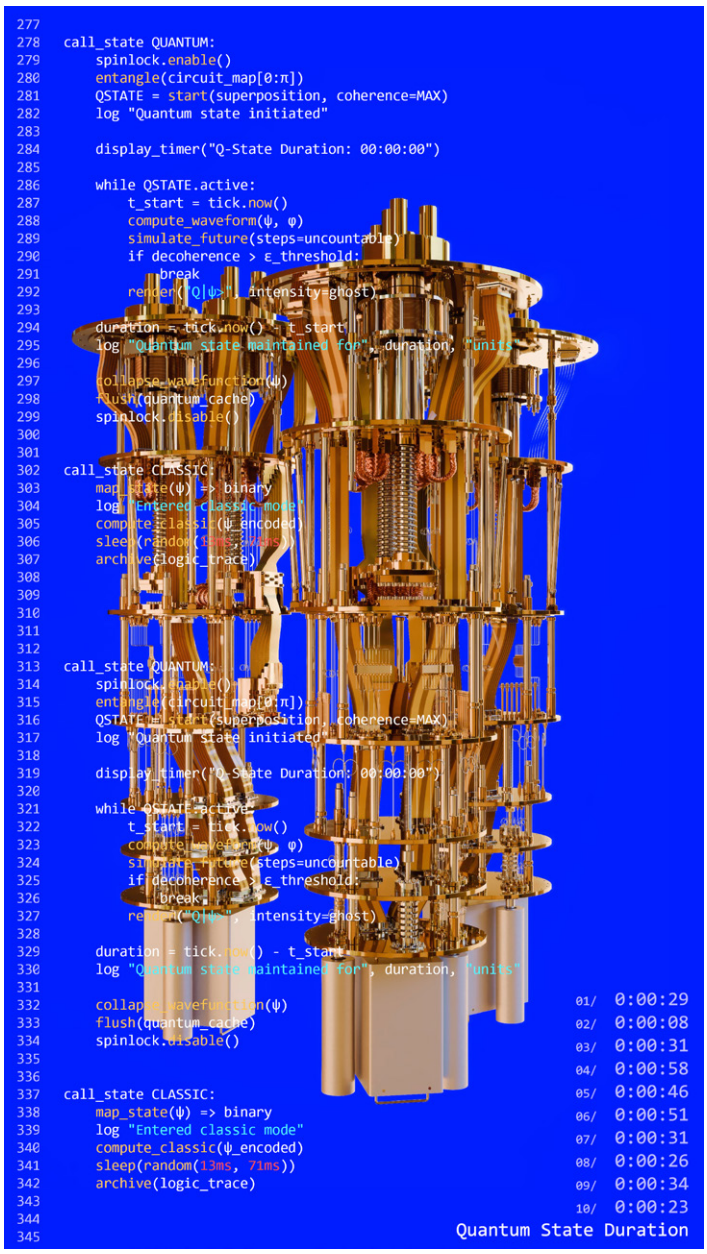
BUILDING FOR QUANTUM



BUILDING FOR QUANTUM follows the construction of the building that will host one of the few quantum computers in the world, the first in Spain. As quantum computing redefines the boundaries of knowledge, this video installation examines the imaginaries and aspirations surrounding the arrival of this technology at the Quantum Basque Center in Donostia- San Sebastián, Spain.

This machine represents the world's first modular quantum architecture, designed to form systems capable of solving problems far beyond the reach of today's classical supercomputers. By processing data in multidimensional spaces, it offers insights into the behavior of subatomic particles and mobilizes the foundational principles of quantum mechanics: superposition, entanglement, decoherence, and interference. Delving into the daily challenges of building this architecture, the camera goes behind the scenes to offer a glimpse into the manipulation of matter and the technological, human, and labor efforts involved.

Film Directors:
Manuel Correa
Marina Otero Verzier

Installation design:
Manuel Correa
Marina Otero Verzier
Manuela Sancho

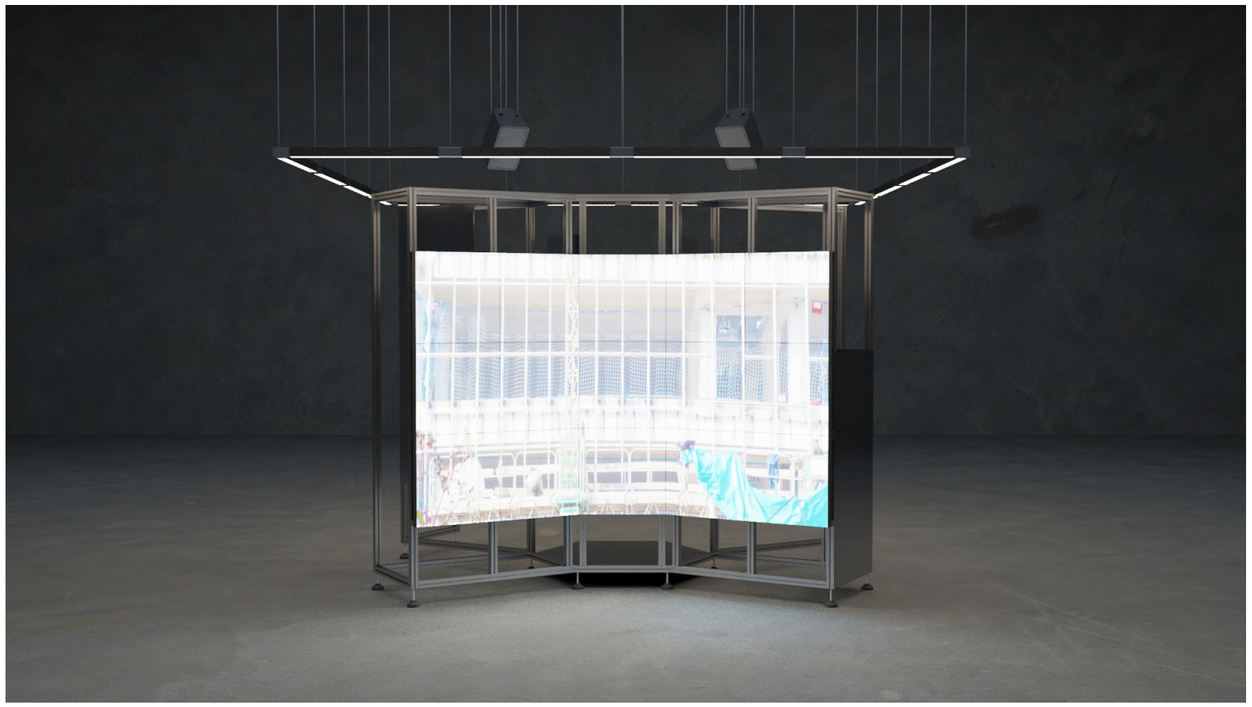
3D modelling:
Manuela Sancho

Sound design:
Emil Olsen

Project managment:
Ana Robles

Supporters:
Creative Industries Funds NL
BasQ - Basque Government
Columbia University GSAPP

→ FRONT VIEW: Installation inspired by the design of IBM's Quantum Computer 2, the film's protagonist. The film is 20 minutes long and operate in a loop.

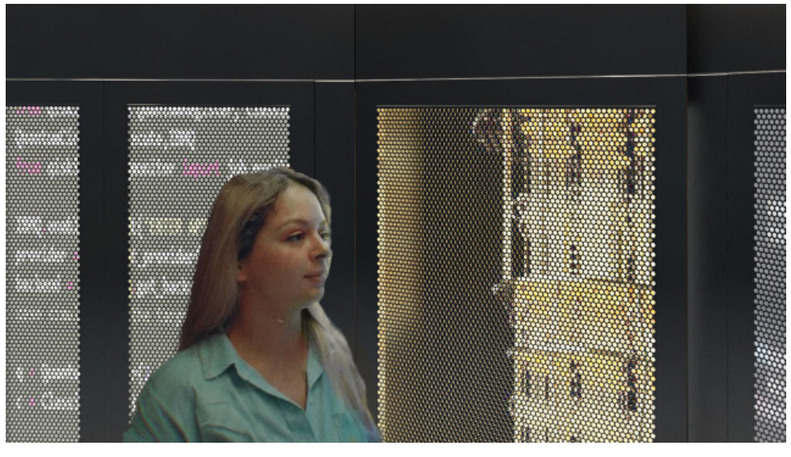


→ BACK VIEW: The installation also offers an entry point into the back end of the Quantum System Two.

Scientists, architects, construction workers, public officials, and local residents speculate on how quantum computing might unveil new understandings of the world, of space, and, by extension, of architecture itself.

The film navigates the intersection of the physical and the philosophical within quantum architecture - juxtaposing the tangible, ordinary materials of brick and mortar with the meticulous precision required to sustain near-perfect vacuum chambers at temperatures colder than deep space. Enery is fundamental to all those endeavors. On the construction site, energy manifests through restless movement and transformation. Within the quantum machine, it must be meticulously contained. The operations of qubits and their interactions are shielded against errors introduced by thermal vibrations, cosmic rays, electromagnetic interference, and other disturbances.

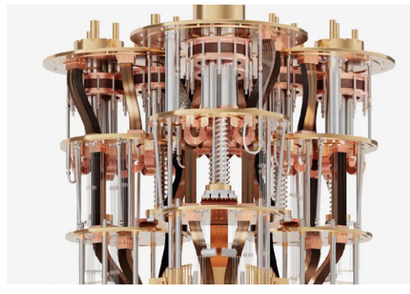
Much like the caves of the ancient world, the operations of qubits require isolation from external stimuli to access knowledge, prophetic dreams, and revelations -a portal to the unseen.



→ BACK VIEW, detail.

IBM Quantum System Two, a modular-architecture quantum computing platform that will be built in Donostia-San Sebastian. Image credit: IBM.

Construction works for the Ikerbasque Center in Donostia, which will include the Quantum Basque Center and host IBM Quantum System Two. Image credit: Ruben Plaza, Noticias de Gipuzkoa.



Quantum Heron processor, which operates as part of IBM Quantum System Two. Image credit: Ryan Lavine for IBM.

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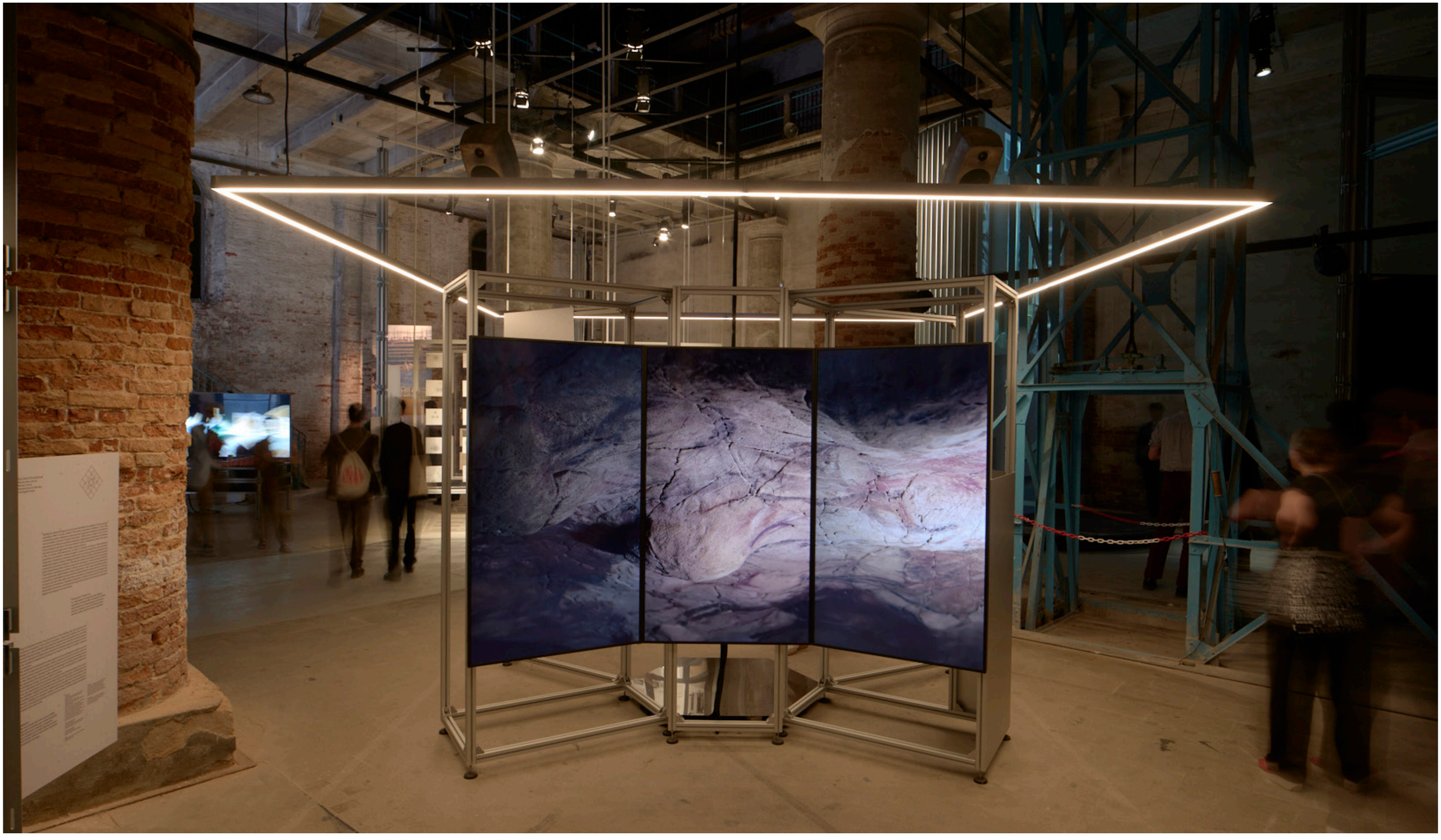
/* Quantum computing is reshaping
the boundaries of knowledge,
promising solutions to problems that
elude even the most powerful
classical supercomputers. */
/* The arrival of quantum computing
opens new possibilities for existing
scientific experiments. */
/* By processing information through
multidimensional quantum states, it
unveils insights into subatomic
behavior and fundamental forces,
bringing us closer to deciphering the
universe's mysteries. */
input()


23197,0V
6001,5V
6187,4V



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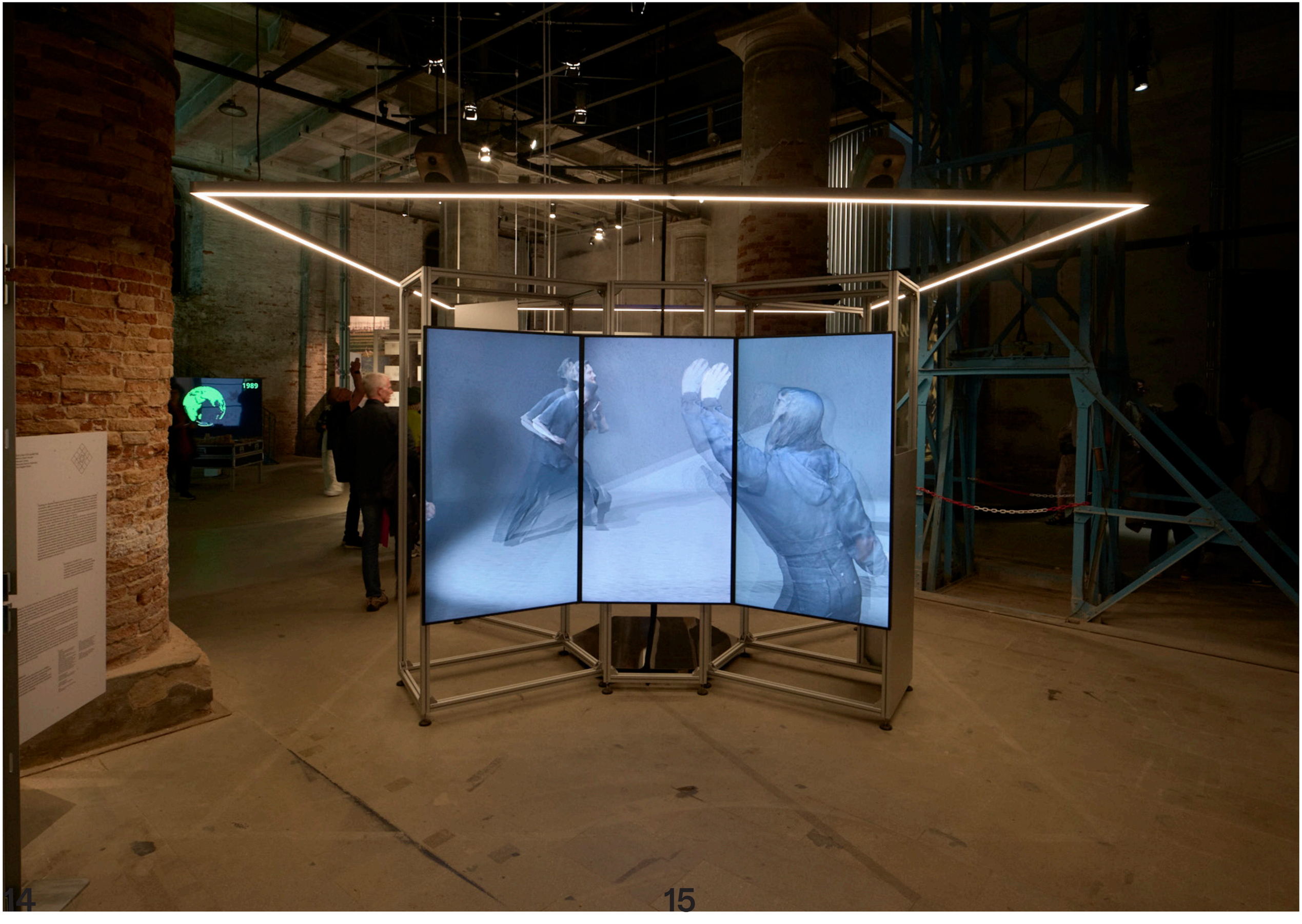
1989

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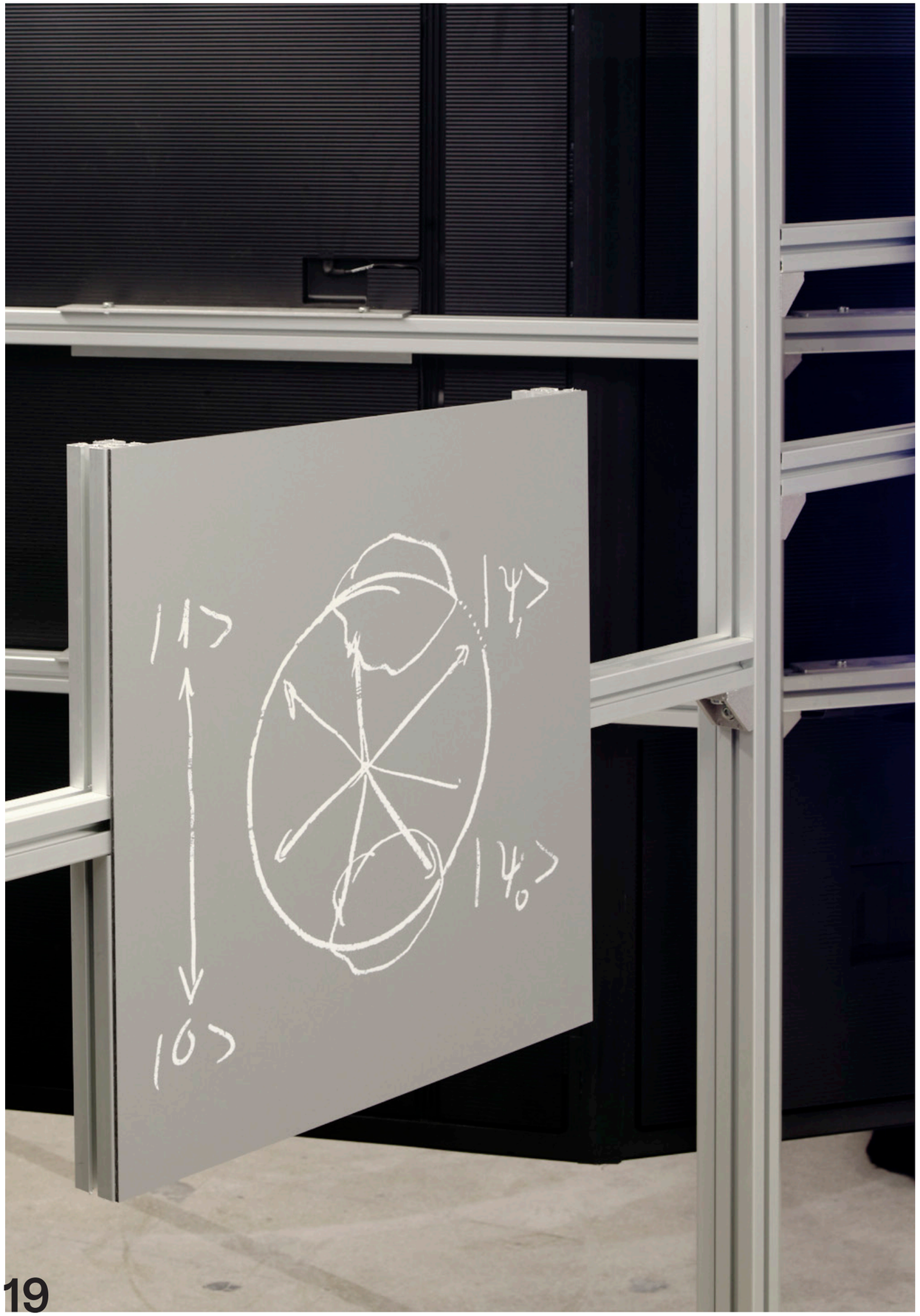

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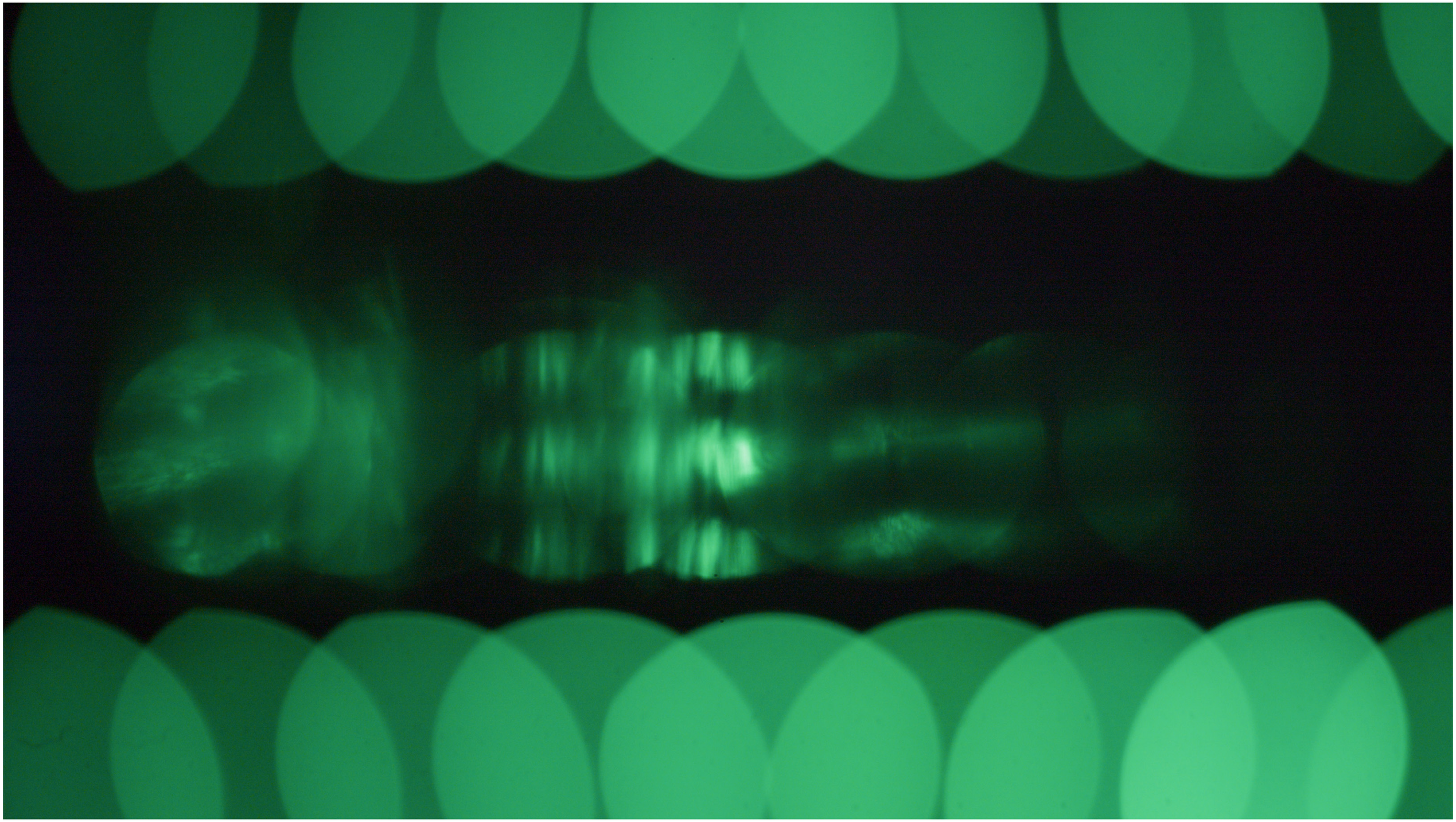
It's as if a lot of people
were trying all the paths

→ FILM STILLS, IBM-Euskadi Quantum Computational Center

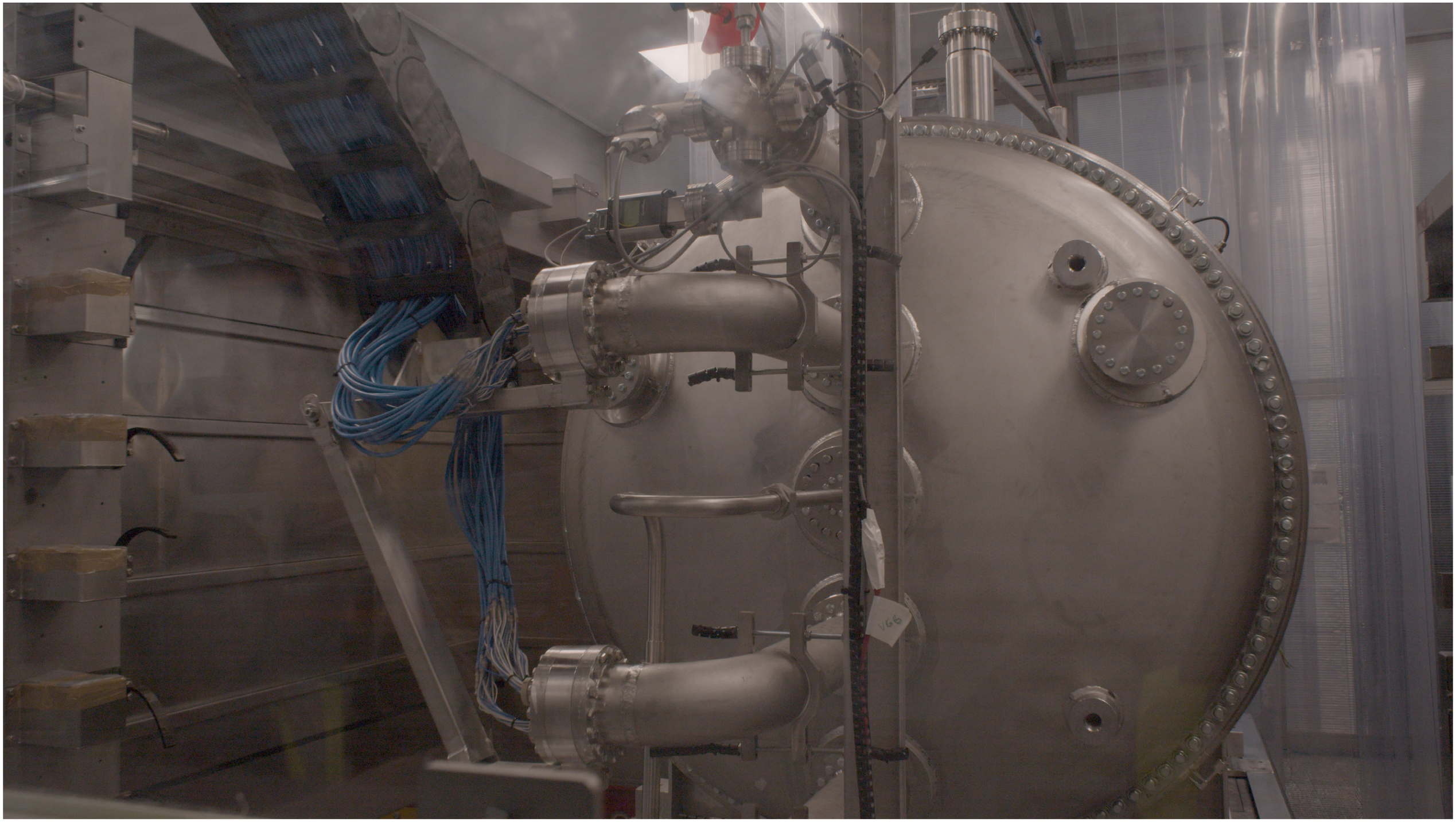
→ FILM STILLS, IBM-Euskadi Quantum Computational Center

→ FILM STILLS, IBM-Euskadi Quantum Computational Center

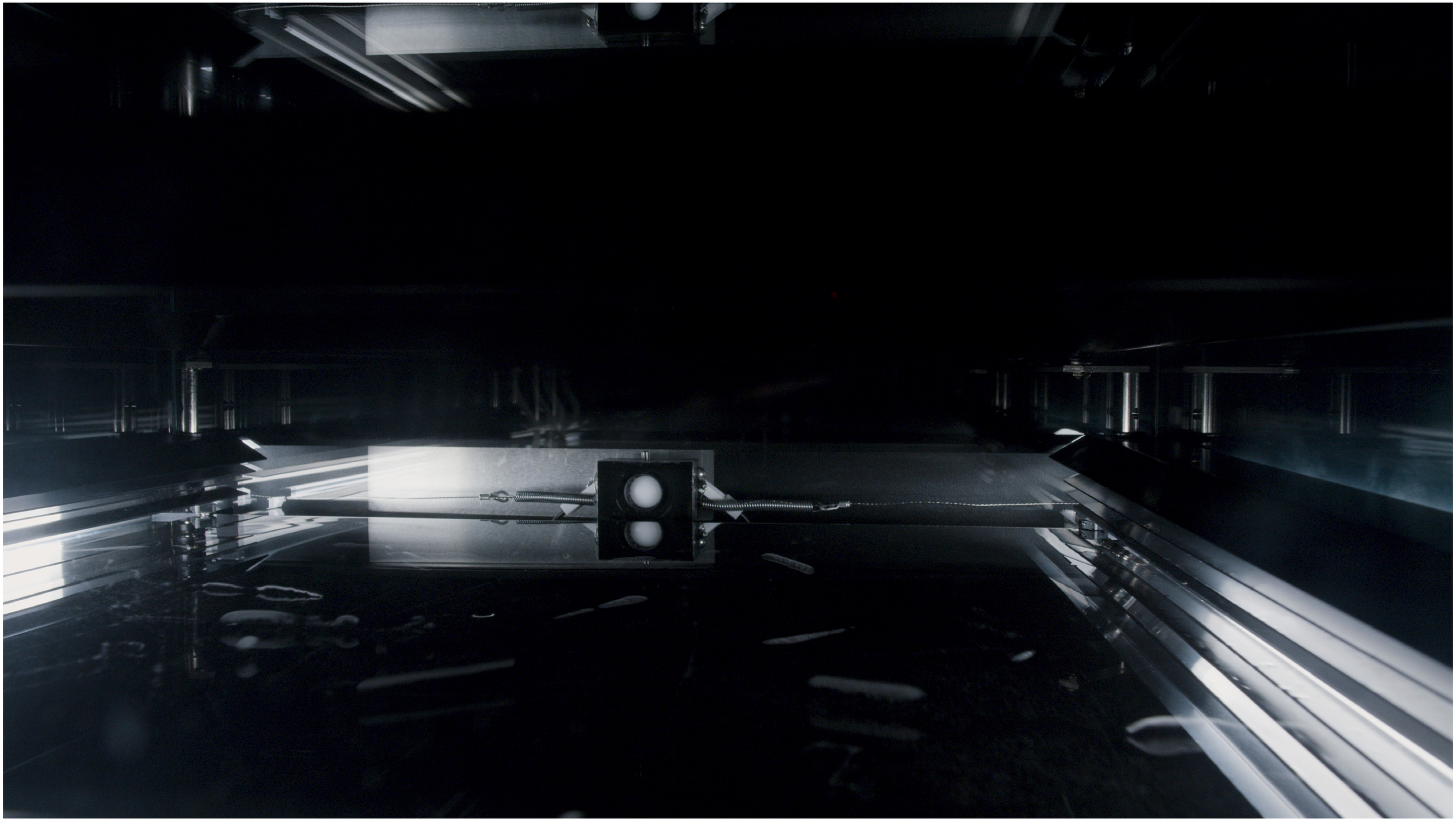
→ FILM STILLS, Hyperion supercomputer, Donostia International Physics Center - Ikerbasque



→ FILM STILLS, Canfranc Underground Laboratory



→ FILM STILLS, Canfranc Underground Laboratory



→ FILM STILLS, Canfranc Underground Laboratory

BUILDING FOR QUANTUM is featured in the main exhibition of the 2025 Venice Architecture Biennale at the Arsenale.

The Biennale is globally recognized as the most significant event in architecture, celebrated for its international influence and diverse professional audience.

Marina Otero Verzier is an architect and researcher whose work sits at the intersection of critical spatial practices, ecology, technology, and activism. In 2022 she received the Harvard GSD's Wheelwright Prize for a project on the future of data storage. Her winning proposal 'Future Storage: Architectures to Host the Metaverse' examines new architecture paradigms for storing data and how reimagining digital infrastructures could meet the unprecedented demands facing the world today.

She is a Lecturer in Architecture at Harvard GSD, and Dean's Visiting Assistant Professor at GSAPP, Columbia University, New York, where she leads the 'Data Mourning' clinic, an educational initiative focused on the intersection between digital infrastructures and climate catastrophe. Otero is a member of the newly founded Architecture Advisory Committee of the Museo Nacional Centro de Arte Reina Sofía (MNCARS). From 2020-2023 she was head of the Master in Social Design at Design Academy Eindhoven. From 2015 to 2022, she was director of research at Het Nieuwe Instituut (HNI) - the Dutch institute for architecture, design, and digital culture and the Netherlands' national archive for architecture and urban planning. At HNI, Otero gave visibility to research projects, practices, and initiatives that depart from established modes of thinking. Examples include 'Automated Landscapes' on the emerging architectures of automated labor, 'Burn Out: exhaustion on a planetary scale,' instigating new forms of coexistence and care for multispecies bodies, and 'Lithium: States of Exhaustion' on the interrelation of extractivism and mental health.

Otero has curated exhibitions such as 'Wet Dreams,' at CentroCentro Madrid in 2024, and 'Compulsive Desires: On Lithium Extraction and Rebellious Mountains,' at Galería Municipal do Porto in 2023. Alongside the conception and curation of several exhibitions at Het Nieuwe Instituut between 2015 and 2021, Otero was a co-curator at the Shanghai Art Biennial 2021. She was in the Artistic Team of Manifesta 13 Marseille, and co-curated exhibitions at the Shenzhen Bicity Biennale of Urbanism and Architecture (2013, 17, and 19), Vienna Biennale (2017), International Architecture Biennale in São Paulo (2017), and Istanbul Design Biennial (2014). At the 16th Venice International Architecture Biennale in 2018, Otero curated 'Work, Body, Leisure' for the Dutch national pavilion. As part of the After Belonging Agency, she was Chief Curator of the 2016 Oslo Architecture Triennale. Otero has lectured at universities around the world and taught architecture studios and seminars at the Royal College of Art in London, ETSA Madrid, Barnard College and Columbia GSAPP in New York, Harvard GSD, HEAD Geneva, and UC Chile in Santiago, among others.

Otero's work is published in international books and journals, and was awarded the Thought and Criticism Award by FAD, and grants by The Graham Foundation, Design Trust, and the CCA. She recently authored her first book titled *En las profundidades de la nube* (2024) and focused on the impact of digital infrastructures. Otero has co-edited *Automated Landscapes* (HNI, 2023), *Lithium: States of Exception* (ARQ and HNI, 2021), *More-than-Human* (HNI, Serpentine Galleries, Manifesta, 2020), *I See That I See What You Don't See* (HNI, 2020), *Unmanned: Architecture and Security Series* (Dpr-Barcelona, 2016-20), *Architecture of Appropriation* (HNI, 2019), *Work, Body, Leisure* (Hatje Cantz, HNI, 2018), *After Belonging: The Objects, Spaces, and Territories of the Ways We Stay in Transit* (Lars Müller Publishers, 2016), and *Promiscuous Encounters* (GSAPP Books, 2014).

Otero studied architecture at TU Delft and ETSA Madrid, and graduated in 2013 as a Fulbright Scholar from the MS in Critical, Curatorial and Conceptual Practices in Architecture at Columbia University GSAPP. In 2016, Otero received her PhD at ETSA Madrid (cum laude) .

Manuel Correa is a Colombian artist and filmmaker based in Madrid. His work explores memory and post-conflict reconstruction in contemporary societies. Manuel's work is exemplified by the difficult task of negotiating highly complex and fragile social relations formed in the aftermath of trauma. He has used documentary filmmaking as a tool through which to bring people together: creating meeting points for war victims, survivors, activists, and scientists. Correa has an MA in Research Architecture from Goldsmiths College, University of London. He was part of the Forensic Architecture project. His works have been presented in venues such as the Spanish Pavillion at the 18th Venice Architecture Biennale, Kunsthaus Graz, Rotterdam International Film Festival, Museo Tamayo in Mexico, Presentation House Gallery in Canada, MediaLab Matadero, The Medellín Museum of Modern Art, The 8th Norwegian Sculpture Biennial, Museo de la Memoria y los Derechos Humanos in Chile, e-flux Architecture, DOK Leipzig international documentary film festival, amongst other spaces.

Manuela Sancho is an architect, researcher, and 3D artist. She graduated from the Technical University of Madrid (ETSAM) and is currently pursuing a Master's in Research Architecture at Goldsmiths, University of London. Her work combines architectural and design practice with interdisciplinary collaborations in the fields of art and research, focusing on landscape, ecology, and the transformative potential of digital media. She is currently involved in the project "Energy Aesthetics," which has been awarded by the Carasso Foundation and the Spanish Foundation for Science and Technology. Additionally, she is a member of the Documentary Research Office, a research group based at Medialab Matadero in Madrid. Sancho's projects have been showcased at Medialab Matadero, featured in Arquitectura magazine by the Official College of Architects of Madrid, the digital archive Archipielago by KoozArch magazine, and published in the newspaper El País.

The Basque Foundation for Science (Ikerbasque) is a prominent organization established in 2007 by the Basque Government to bolster scientific research and innovation in the Basque Country. For this project, they are our scientific partners, giving us access to the installations and being the main people we are interviewing for the film. Its mission revolves around attracting and retaining world-class researchers while fostering an environment conducive to high-impact scientific discovery. Ikerbasque operates by funding and supporting researchers at various career stages, enabling them to lead cutting-edge projects across disciplines like health, technology, energy, and social sciences. Its efforts contribute to elevating the Basque Country as an internationally recognized hub of research excellence, aligning with regional and global goals for sustainable and knowledge-driven development.

Basque Quantum (BasQ) is a strategic initiative led by the Basque Government's Department of Education, in collaboration with the Provincial Councils of Araba, Bizkaia, and Gipuzkoa, aimed at establishing the Basque Country (Euskadi) as a global leader in quantum technologies. The initiative focuses on building a robust ecosystem of research, talent, and innovation in the field of quantum science .BasQ is part of Euskadi's broader long-term commitment to science and innovation, aligning with the objectives of the IKUR Strategy, which emphasizes significant scientific impact and the integration of quantum technologies into both research and industry.