
JO VERWOHLT

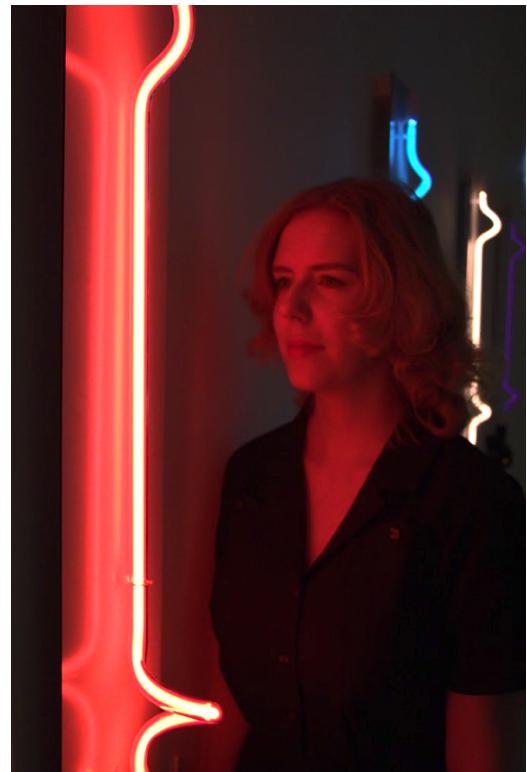
PORTFOLIO

March 2025

DARK, Niels Bohr Institute, University of Copenhagen
Jagtvej 155A, 2. sal 2500 Copenhagen

Jo Verwohlt is an astrophysicist and artist based at DARK, Niels Bohr Institute, University of Copenhagen. Her research is on dark matter and the connection to early galaxy formation and Milky Way halo dynamics.

Artistically she is interested in the interplay between scientific research and human perception. She explores how we experience and interpret the universe at the edge of scientific knowledge.



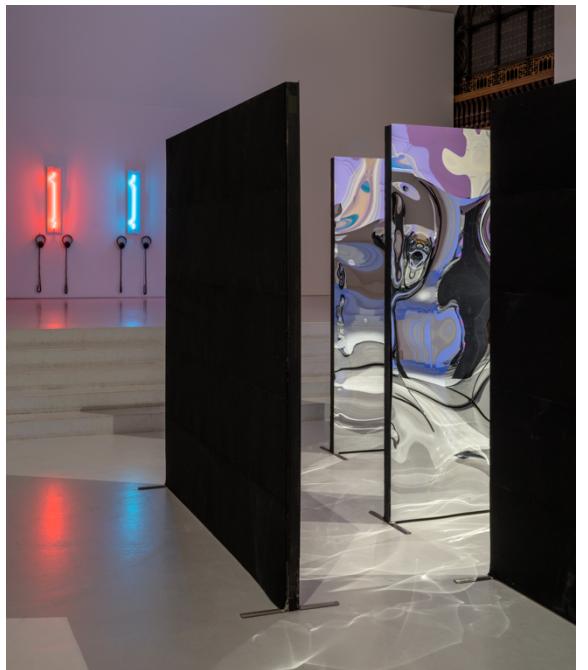
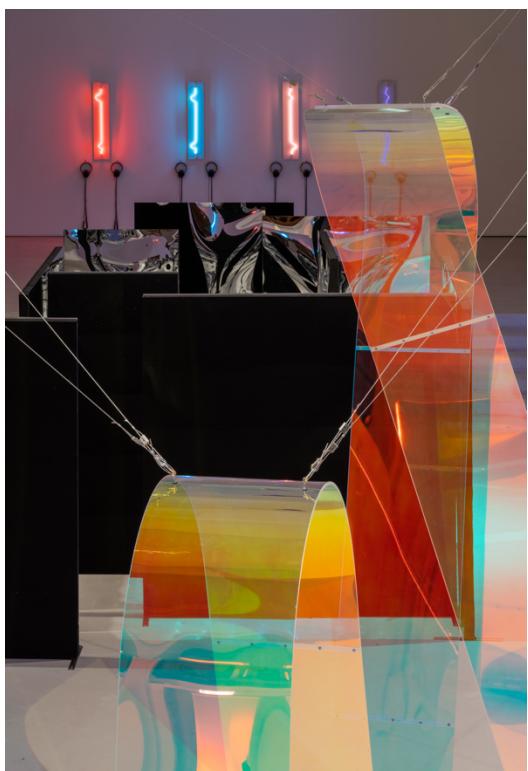
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INTERFERENCE

Interference was an art exhibition created in collaboration with sound artist Signe Heinfelt. It was exhibited in Nikolaj Kunsthall in February to May 2023.

Interference consisted of eight light and sound installations that was based on the concepts from physics and astronomy on the topic of waves: Standing Wave, Black Hole, Emission, Sound Horizon, Electromagnetic Spectrum, Dark Matter, Sound Paintings, and Evolution of the Universe.

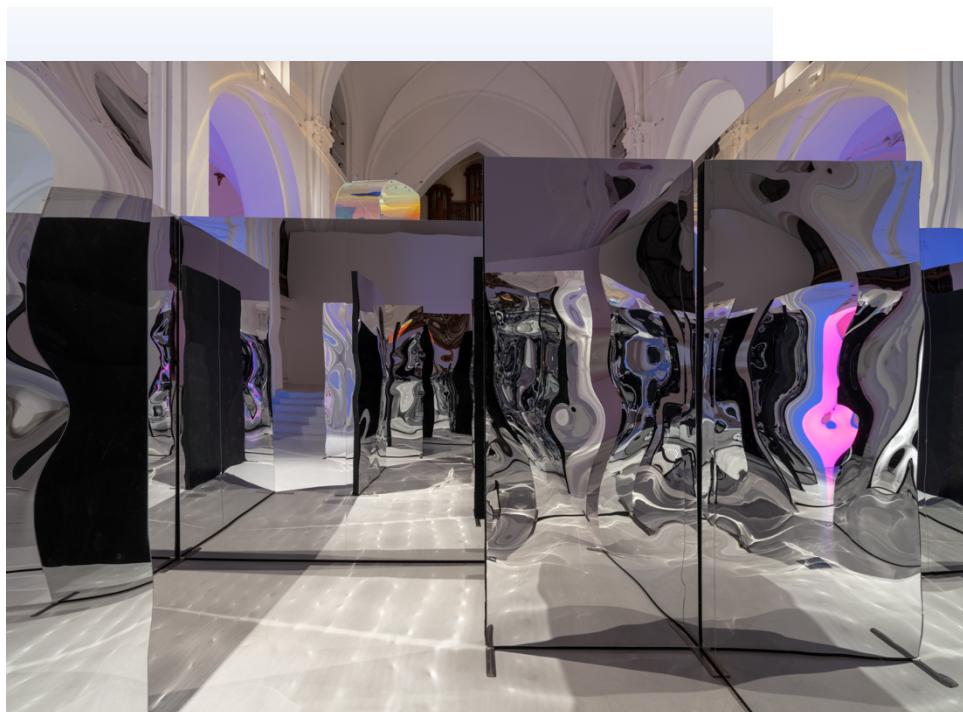
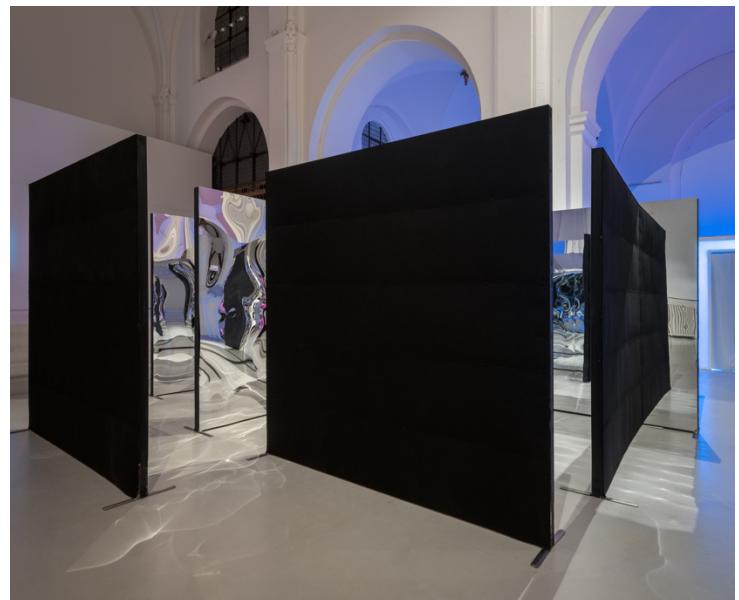
Interference was funded by the Novo Nordisk Foundation.



BLACK HOLE

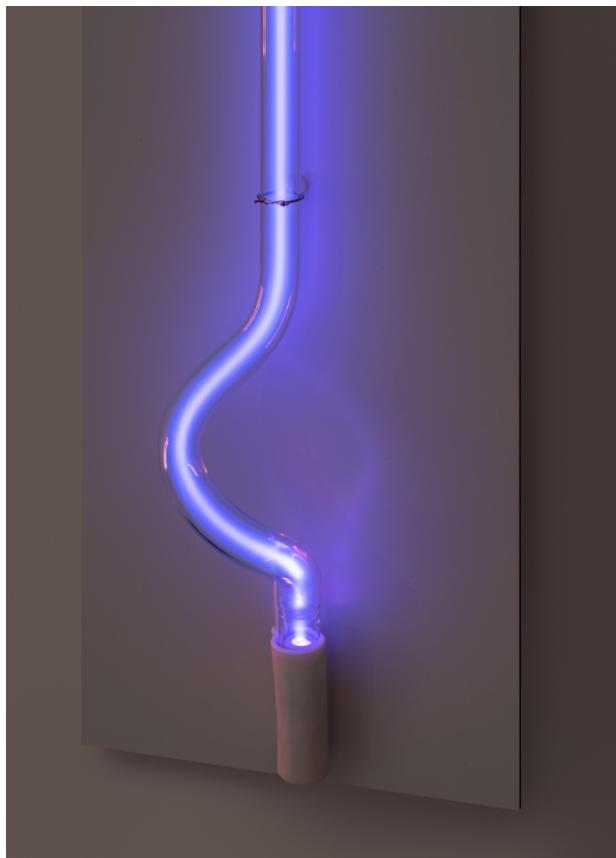
The work *Black Hole* is a black hole created as a fuzzy infinity room. When standing in the middle, there are mirrors along all lines of sight, and it feels as if all space is contained within the black hole.

Black holes are extremely dense regions in space where the concept of space and time as we know and experience them breaks down. The regions are so massive that the gravitational force becomes too strong for anything - not even light - to escape a certain boundary. This boundary is known as the event horizon.



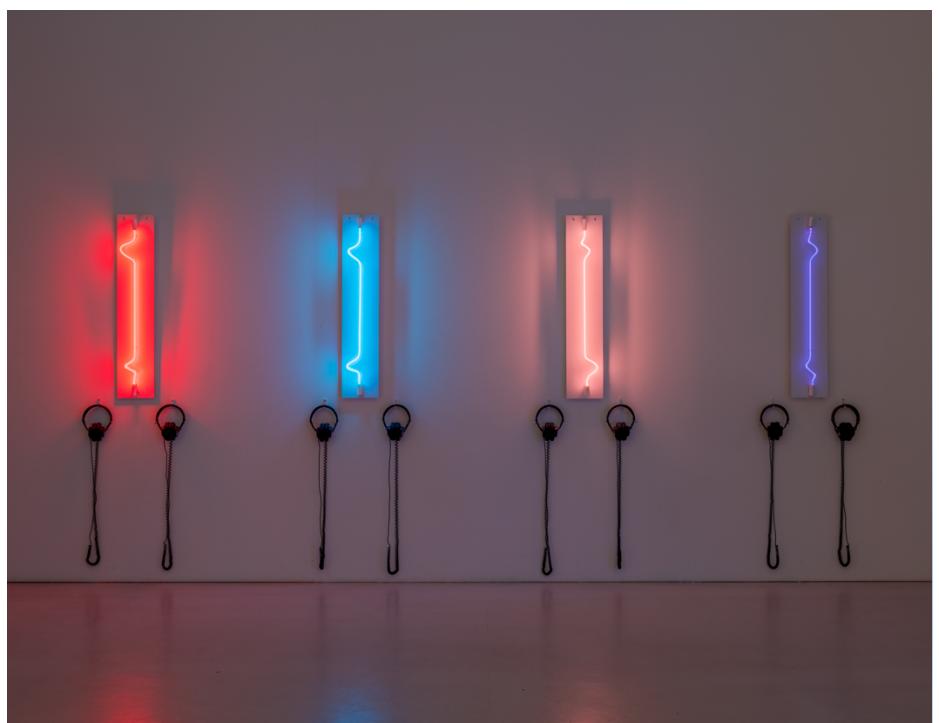
Photos by David Stjernholm

EMISSION



Emission is created from four chosen elements: helium, argon, neon, and mercury. The work consists of gas tubes that are each filled with the gas of one of the elements. The tubes light up with each of the elements' unique colour and are accompanied by a sonification of the so-called spectral lines.

Spectral lines constitute a unique emission light spectrum which is individual to every element. The spectral lines are created by the energy states of the atoms' electrons. As the electrons jump between energy states, light is emitted with specific frequencies as a kind of fingerprint of light. As a consequence, the elements become identifiable in the universe.



Neon (Ne) – red

Mercury (Hg) – turquoise

Helium (He) – yellow

Argon (Ar) – purple

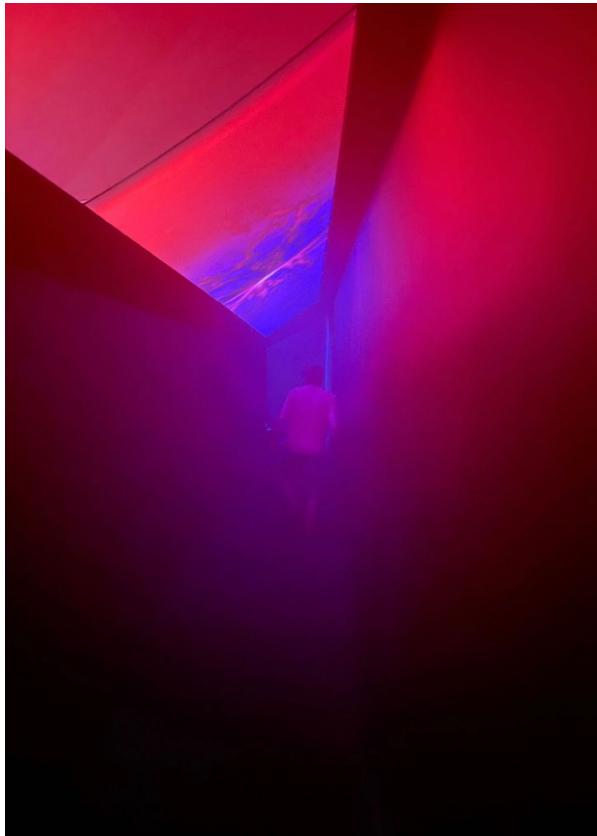


DARK MATTER

In *Dark Matter*, sound is composed in three dimensions: frequency, time, and rotational velocity. Two loudspeakers are fixed to a rotating wheel with a diameter of two metres. As the wheel rotates, it affects the sound from the loudspeakers and changes the frequency due to the Doppler effect. This means that sound and light frequencies will change with movement in relation to the observer. The music is composed by a sampling of notes from the organ at Nikolaj Kunsthall.

Dark matter's gravitational effects control how fast galaxies rotate. The exact speed can be measured via the Doppler effect on the light from the galaxies, and the amount of dark matter can be calculated.





ELECTROMAGNETIC SPECTRUM R + B

Electromagnetic Spectrum R and B was reinterpreted and exhibited as part of SEADS' (SPACE ECOLOGIES ART AND DESIGN Network) and Theater Neumark's immervise theatre experience *EXOMOON* in Zürich in September 2023.

