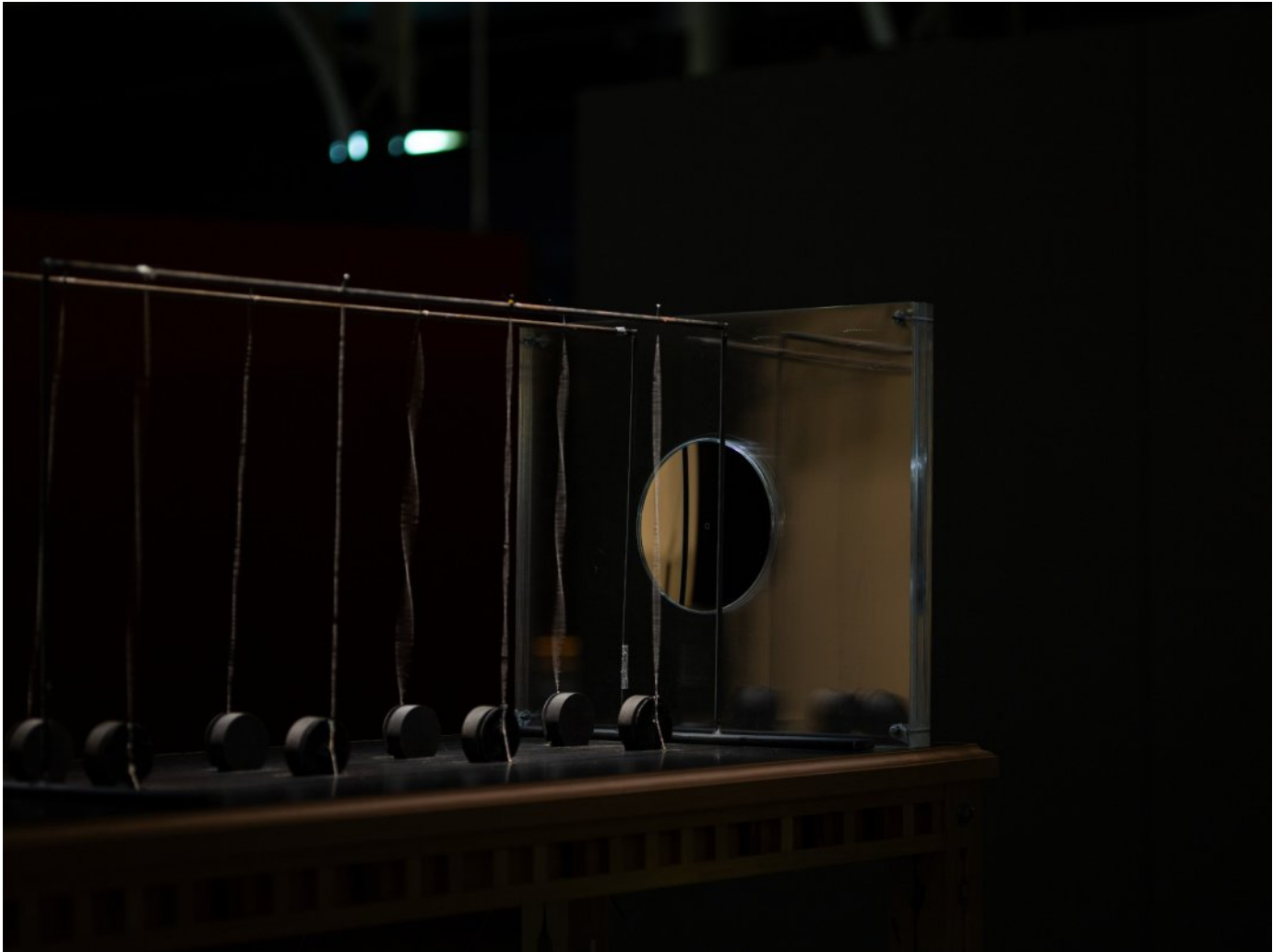


# The Aethers



Claire Williams

2019-2020



**LE FRESNOY**  
STUDIO DES ARTS  
NATIONAL CONTEMPORAINS

# The Æthers

The Æthers is a project that questions our relationship to the invisible through a media archaeology of scientific instruments. Anchored in the research led by the scientific community of the 19th century, that was often nourished by parallel and occult science practices. This project aims to make the density of emptiness through which we communicate perceptible.

This environment that some may call "ether" or others "fluids" or "bodies" are woven by forces, fluids and waves that come from animated or inanimate beings: cosmic rays, human thoughts, vital fluids, mediumnistic energy's or the voices of the dead..to which we can add our modern telecommunications such as satellites, WiFi signals, radio waves and telephone conversations.

The installation Ondoscope materializes in real time the electromagnetic variations of the exhibition space. An antenna scans the space searching for our electromagnetic ghosts. A code translates these fluxes in mechanical vibrations, made visible through 8 strings that are modulated by the intensity and nature of these waves. An eye hole invites the spectator to look through and perceive minuscule vibrations in the air, at the origin of a physicality of sound that takes place in front of our eyes..

# Artistic Intent

« Un fluide physique subtil emplit l'univers, servant d'intermédiaire entre l'homme, la terre et les corps célestes, et entre les hommes eux-mêmes »

1779 Anton Mesmer

Computers and smartphones, and all declination's of our modern technologies make our electromagnetic doubles travel from one place of the planet to another. Sometimes they wander indefinitely in the atmosphere; we have all become mediums. From cosmic rays to gamma rays that saturate the emptiness through which we communicate, to whom we can add human voices, personal messages, collective discussions and data.

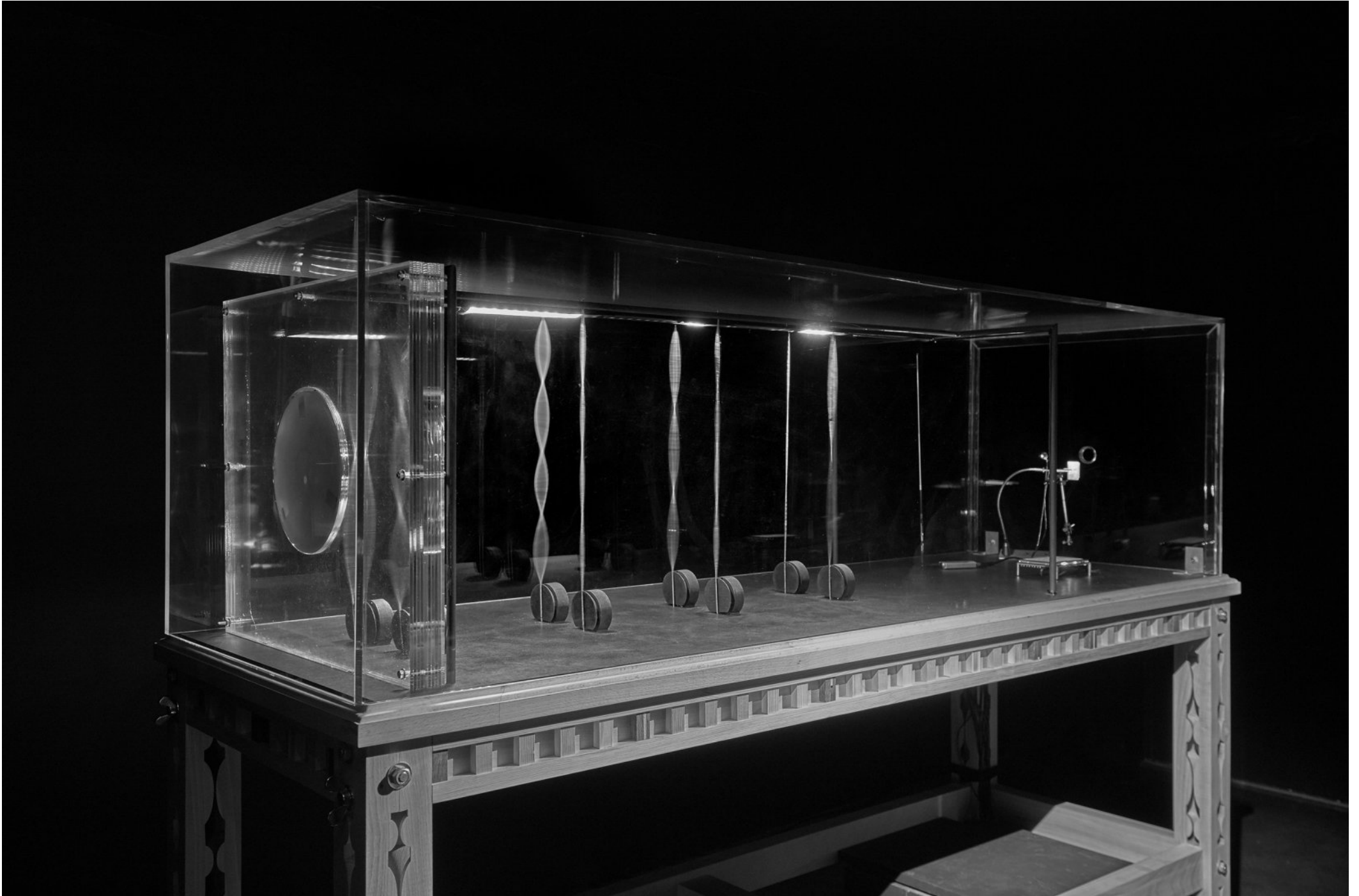
From the second half of the XIX<sup>th</sup> century the invisible starts to be seen. Chemists, physicians, engineers, inventors, mediums, theosophists and other erudite collectively immerse themselves in a bath of substances. distinct of matter, but not less real. This environment that some may call "ether" or others "fluids" or "bodies" are woven by forces, fluids and waves that emanate from animated or inanimate beings: cosmic rays, human thoughts, vital fluids of plants, mediumnistic energy's or the voices of the dead..to which we can add our modern telecommunications such as satellites, WiFi signals, radio waves and telephone conversations.

Each in their manner, chemists, physicians, engineers, inventors, mediums, doctors and theosophists imagine, sometimes together, devices to detect and explore all of these forces.They hack freshly invented devices or discover new ones that can be assembled and used for other purposes: biometer, dynamometer, stenometer, psychoscope, necrophone, psychophone, perpetual movement machines, phonograph, telegraph, telephone...All these devices are composite assemblies of measuring instruments, chemical substances, physical devices, human bodies...They do not hide that they are shaped by the forces they detect as much as they shape them.

Forces become tangible as their effects are translated in the form of photographic images, plotted lines, movements of objects or strange sounds... This episode of the XIX<sup>th</sup> century conceals unexplored possibilities of ways we communicate through the void.

A production Le Fresnoy studio national des arts and co production Ososphère (2019-2020)

# Endoscope



# Ondoscope

The installation Ondoscope is a device that reassembles and reactivates schematics and concepts of several experimental scientists of mid 19th century whose ambitions were to detect mystical fluids and magnetic forces that were contained in the ether.

Ondoscope materialises in real time the electromagnetic variations of the exhibition space. A radio scanner scans the space searching for our electromagnetic ghosts. A computer code translates these fluxes in mechanical vibrations, made visible through 8 strings that are modulated by the intensity and nature of these waves. An eye hole invites the spectator to look through and perceive minuscule etheric vibrations revealed in the air..

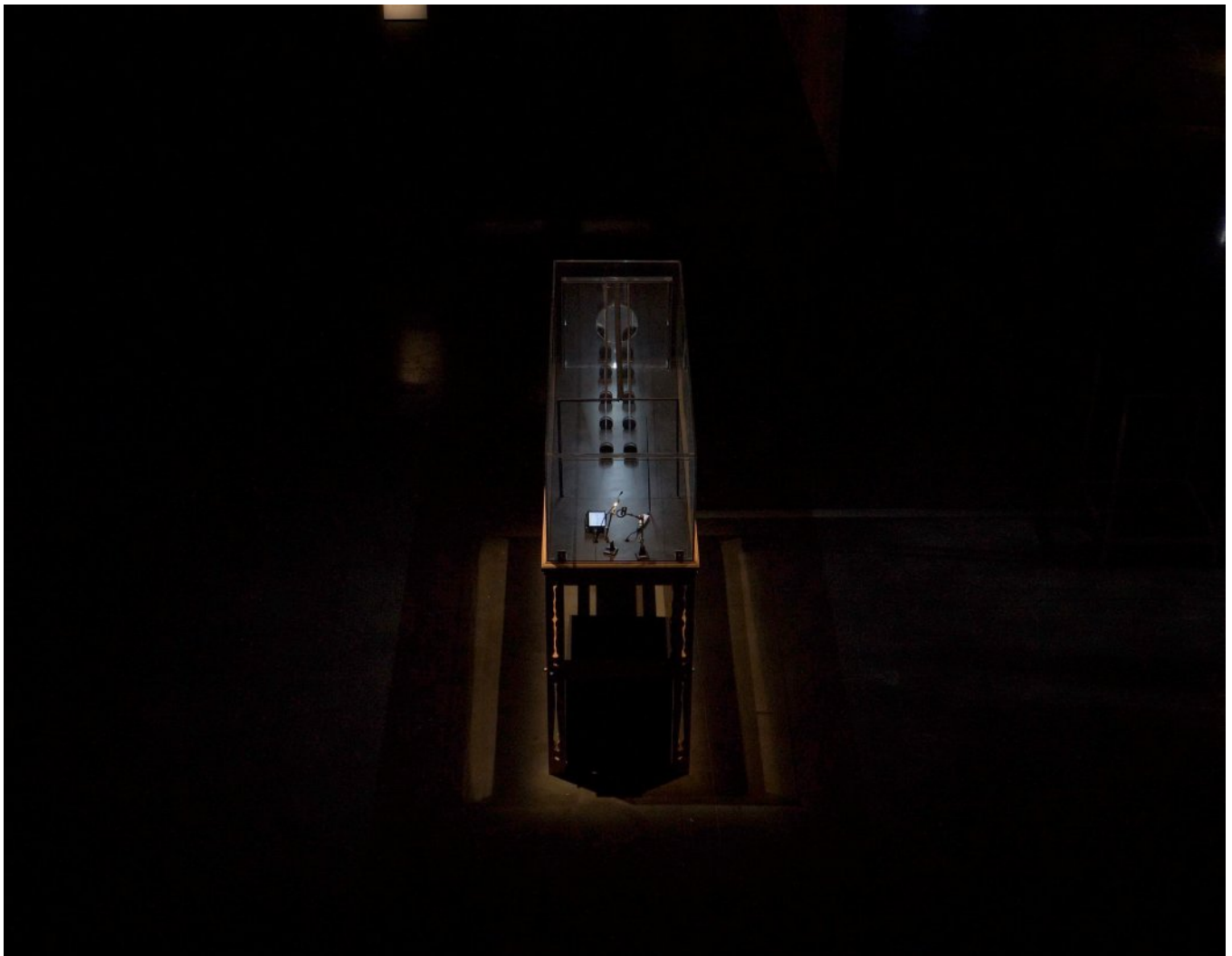
## Technical description

A setup made of a wooden table and a transparent case that recovers a mirror, a razor blade, a light source, an electronic circuit and 8 metal threads.

From outside we see metal threads that vibrate and form different figures according to the frequency's the radio scanners detects..

The radio scanner with it's antenna scans continuously the exhibition space electromagnetic activity (radio waves from fm/am stations to satellite signals, long and short waves telecommunications etc..)

The visitor is invited to place his or her eye in the eyehole and contemplate a very fine etheric substance that escapes in the air. An analogue optical set up allows us to observe with our bare eyes the infra red frequency's that escape from the metal threads.







Strings that vibrate to their fundamental frequency making visible their sound waves.







VELOCITY = FREQUENCY X WAVE LENGTH  
 $v = n \times \lambda$

# CHART OF ELECTROMAGNETIC RADIATIONS

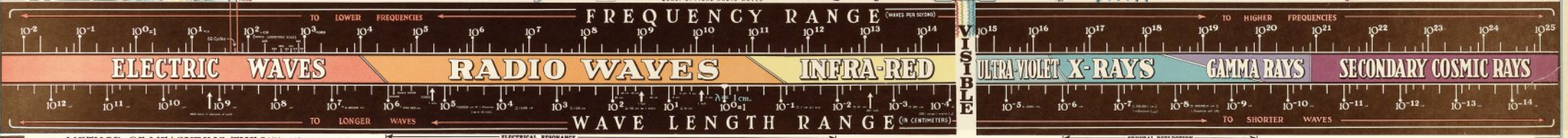
ENERGY = PLANCK'S CONSTANT X FREQUENCY  
 $E = h (6.623 \times 10^{-27}) \times n$

CHARACTERIZED BY A COMMON SPEED IN A VACUUM  
 SPEED OF LIGHT (C) = 299,774 km. per sec. = (Approximately) 186,000 Miles per sec.  
 AS DETERMINED BY A. A. MICHELSON

ARTHUR H. COMPTON  
 W.M. WELCH SCIENTIFIC COMPANY  
 CHICAGO, U.S.A.

EMITTERS

EMITTERS



METHOD OF MEASURING THE WAVE LENGTH

REFLECTION: LAW OF REFLECTION, CONCAVE AND CONVEX MIRRORS, REFRACTION, DIFFRACTION, INTERFERENCE, POLARIZATION, DOPPLER'S EFFECT, APPARATUS FOR DIFFRACTION OF ELECTRONS.

TRANSMITTERS: RADIO SPECTRUM, FREQUENCY and WAVE LENGTH ALLOCATIONS, RADIO CHARACTERISTICS, REFLECTION OF RADIO, REFRACTION OF RADIO, POLARIZATION OF RADIO, INTERFERENCE OF RADIO, MEASURING WAVE LENGTH WITH LECHER WIRES, RADIO TUNED CIRCUIT, DETECTORS OF RADIO WAVES.

RECEIVERS: ALL WAVE RECEIVER, TELEVISION RECEIVER.

PARTICLES HAVE WAVE CHARACTERISTICS: CONCEPTS OF LENGTH, MASS AND TIME, LENGTH, MASS, TIME.

VISIBLE SPECTRUM: THE HYPHEN SPECTRUM, BRIGHT LINE SPECTRA OF SEVERAL ELEMENTS, THE VISIBLE SPECTRUM, PHOTOSYNTHESIS, VISUAL EFFECT, PHOTO CHEMICAL EFFECT, PHOTOELECTRIC EFFECT.

INVISIBLE INFRARED: REFLECTION OF HEAT, REFRACTION OF HEAT, RADIATION OF HEAT, INFRARED PHOTOGRAPHY, INFRARED DETECTION, RADIOMETER.

ULTRA-VIOLET: SUN BURN, X-RAY SPECTROSCOPY, X-RAY PHOTOGRAPHY, X-RAY EFFECTS, FLUORESCENCE, X-RAY PHOTOGRAPHY, REFLECTION OF X-RAYS, ELECTROSCOPE, COMPTON EFFECT, CONSERVATION OF ENERGY AND MOMENTUM BETWEEN COLLISION OF X-RAY PHOTON AND ELECTRON.

GAMMA RAYS: RADIOACTIVITY, PARTICLE CHARACTERISTICS, PHOTOELECTRIC EFFECT, COSMIC RAY EFFECTS, COSMIC RAY EXPLORATION.

SECONDARY COSMIC RAYS: PARTICLE CHARACTERISTICS, PHOTOELECTRIC EFFECT, COSMIC RAY EFFECTS, COSMIC RAY EXPLORATION.

WAVE CHARACTERISTICS

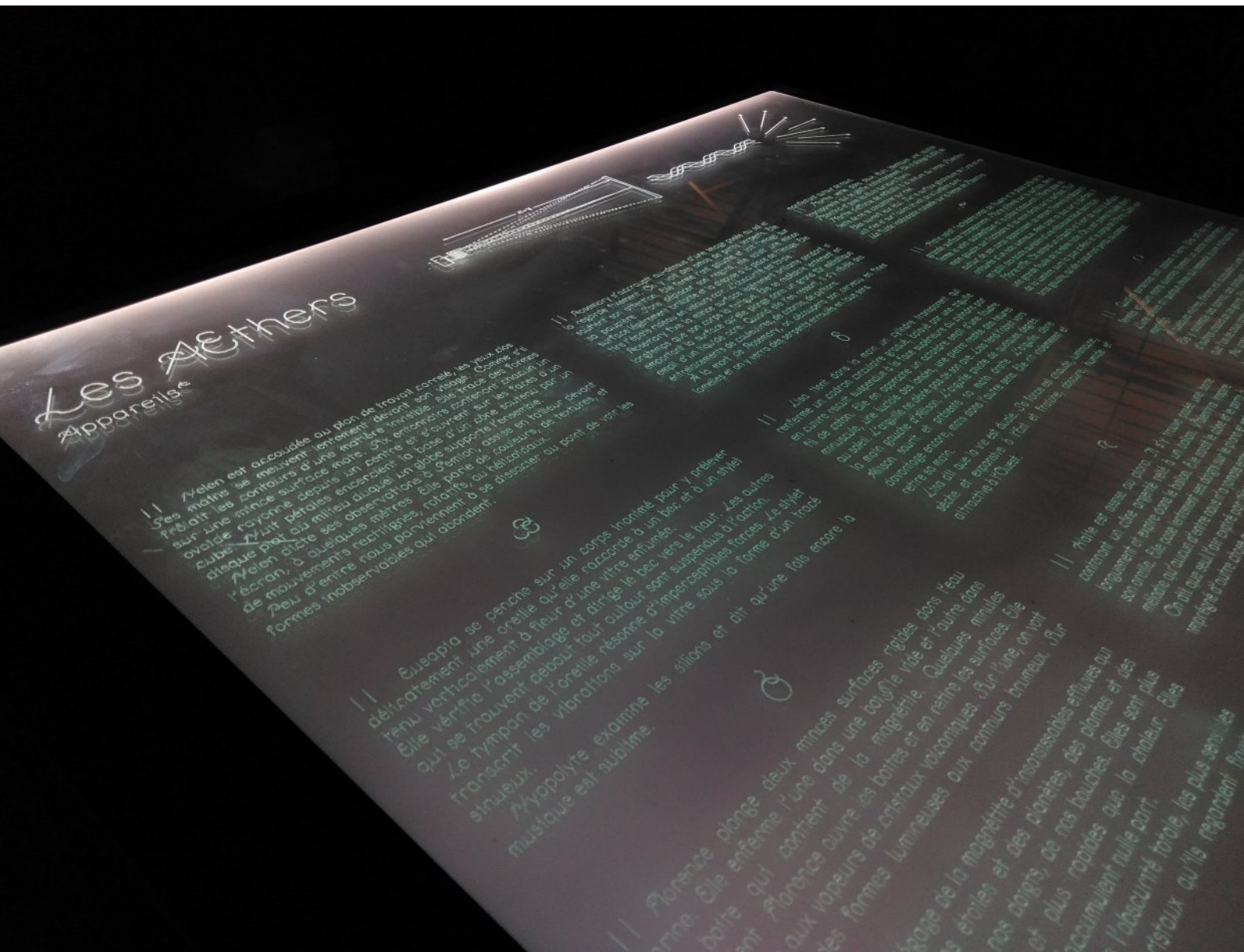
PARTICLE CHARACTERISTICS



# Fictions

Ten small texts are engraved on a glass plate backlit. The writing of these texts were made with the collaboration with Deborah Levy, researcher and writer.

Through a collection of personalities, techniques, and devices from the archives of the mid XIX th to the begging of Xx th : Reports, photographs, schematics of devices, testimonies of people interacting or observing the ether, are here reassembled in ten small texts that reactivate the age of experimental science in the west.



# Extracts

Written by Deborah Levy

Semion is leaning on the tiled worktable, eyes closed. At times, his hands move slowly in the air in front of him. As if he was brushed by the outlines of invisible objects. The instant after he traces lines on a thin matte surface. We see then gradually shapes being formed. Six funnels contain each an ovoid radiating since it's center and opening on the faces of a cube. Eight petals encircle the base of a cone held by a flat disc in the center of which a globe carries the whole set. The other shapes combine in diverse ways funnels, ovoids, cubes, petals, cones, discs, globes, rods.

When he isn't drawing Semion dictates his observations to Katie sitting crossed legged in front of the screen at a few meters from him. There are colors, textures and especially movements, rectilinear, parabolic, helicoidal.

In the facts, few of us are capable to shrink to the point of seeing the minuscule forms that saturate the air that we inhale.

Florence plunges two thin rigid surfaces in marine water. She traps each of them in identical boxes in which one contains magnetite. Long minutes pass by. Florence opens the boxes and removes the surfaces. She exposes them to crystal volcanic vapors. One of them reveals luminous shapes with foggy outlines. On the other nothing. What escapes from the magnetite is something that also escapes from the stars and the planets, plants and animals, of human body's. It also comes out of our fingers and mouth, and frowns. It is slower than electricity and more rapid than heat. It impregnates every thing, but accumulates nowhere. When we enclose them in total darkness, the more sensitive of us claim for the crystals that they look at burn away indefinitely.

## Materiel

Computer  
Raspberry pi  
Electronics  
Amplifiers  
Sound  
Mirror parabolic  
Transducteurs

## Technics

Programming  
Electronic  
SDR(softwaredefinedradio)  
Wood work

## Matter

glass  
wood  
transparent acrylic  
Heating Filament  
nichrome/tungsten  
Electronics

## Links

Site : <http://www.xxx-clairewilliams-xxx.com/projets/les-aethers/>

Video : <https://vimeo.com/480247263>

## Collaborations

L'Association Jonckheere de l'observatoire de Lille  
Le club de radio amateurs de Wasquehal  
Déborah Levy chercheuse et écrivaine.  
Pierre Lelay menuiserie, construction  
Baptiste de la Gorce programmation python

## Production

Production Le Fresnoy studio national (2019-2020)  
Co production festival Ososphère (2019-2020)  
Chargée de Production: Elodie Wattiaux

## Contact

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# Biography

Claire Williams

(EN) The artworks of Claire Williams take the form of woven antennas, glass sculptures filled with plasma or devices that sense the invisible.

Data of radio telescopes and scanners materialise themselves in knitted stitches, sound vibrations or through luminous plasma. She sculpts her electronic components to make visible the electromagnetic movements from the cosmos, through our magnetosphere, to radio waves that cross our terrestrial environment or the ones emanating from our bodies.

She is currently working on the exploration of ether, at the cross roads of experimental and occult science practices. In this way she explores our relationship to the world of the invisible and their instruments by reviving abandoned leads of certain scientific and researches of the mid 19th century.

Claire Williams (1986) lives in Brussels, after a master degree in textile design (La Cambre) she followed a post master at Le Fresnoy studio national des arts contemporains. She exhibits and gives workshops in international venues and regularly teaches in art and design schools.

Her work has been exhibited in digital, sound art festivals and group shows such as Bozar (Be), Le Fresnoy (FR), Centre Wallonie Bruxelles (Paris), La friche de belle de mai (FR), Biennial Chroniques (FR), Ososphère (FR), Festival Scopitone (FR) Red Room (TWN), Moulins Paillards (FR), Tamat (BE), Transnumériques (BE) Digital Encounters (UK), Festival voix de femmes (BE), Hangar (ES), Halles Saint Géry (BE), Le Signe (FR), Site St Sauveur (FR) etc. As well as solo shows at Le Vecteur (BE), la Manufacture (FR), Constant (BE) and the Centro Cultural Puerta de Castilla (ES).