

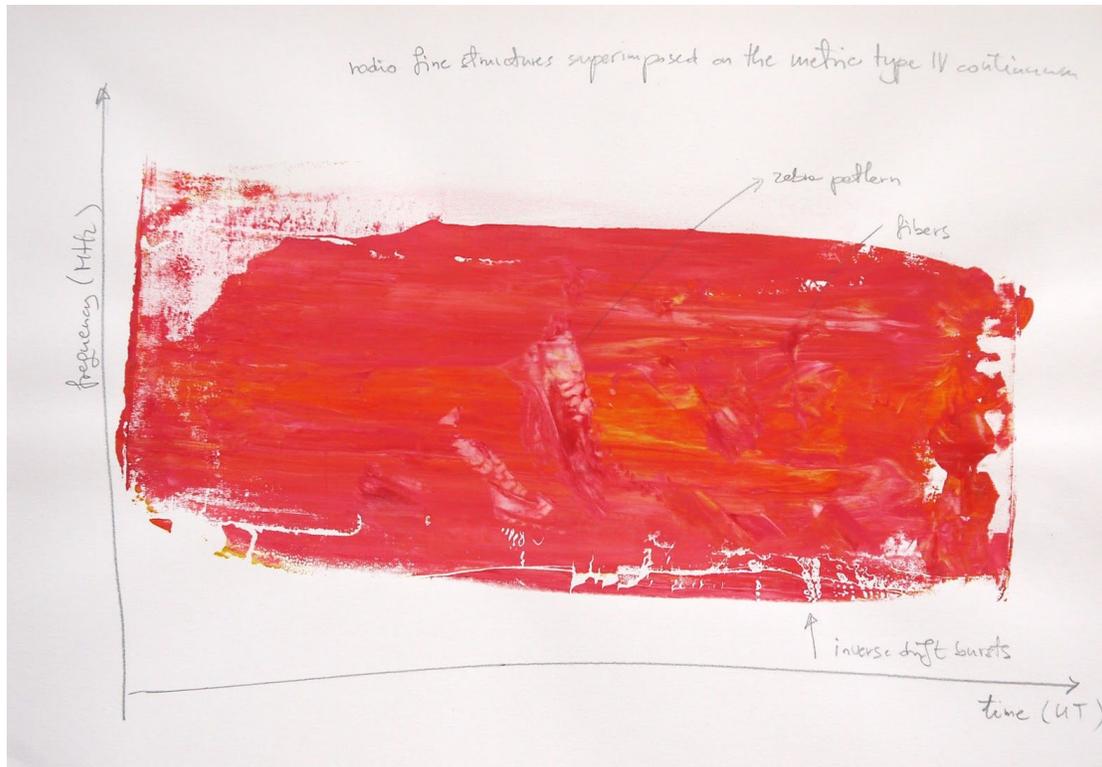
Research title:

An Echo of the Sun

Autopoietic observations and rhythmic compositions, tuned by the fine structures in our space-time realm

Pepa Ivanova,

KULeuven, LUCA School of Arts, Ghent, Belgium



Zebra Patterns from Fictional Observations Series, 2019, monotype silkscreen, 60cmx45 KHM, Malmö, in collaboration with Dr. Jasmina Magdalenic (Royal Observatory Belgium)

Extended abstract of research

The title of my application comes from Anton Vidokle's script: "The communist revolution is caused by the Sun"

Two interconnected concepts frame this research (1) autopoiesis of solar observation data and (2) Sun-Earth symbiosis. I reimagine the scientific data as cultural phenomena narrating our perception. Embodied in machine generated structures, data maps the evolution of knowledge, intervenes in our understandings about the world and reshapes the visual inputs we receive. Therefore main input for this research are the different types of (1) observational data of the Sun and the collected (2) recorded soundscapes, (3) light conditions and (4) meteorological data from the Earth, (5) archived historical data from light conditions. This range of information, instruments and methods to analyze the data I argue in this research to be a human artifact, shaping not only our digital but a physical form, capable of continuously producing/reproducing information.

This research investigates the architectural and digital realm in which we wander and considers the importance of a collaboration between art and science in introducing new modes of perception. For the past ten years I've been researching the ways that one's perception is shaped by developing new stimuli and studied how to provoke sensations with the help of the advancing technology. I experimented with light and sound, electromagnetism and electricity as the intangible matter to construct artworks and interact with spaces. With this research I continue my trajectory by focusing on the relational patterns between the Earth and the Sun, expanding on the epistemologies of solar science (Chizhevsky) and philosophy (Barad, Parisi, Morton) with a hybrid approach combining the legacy of a multitude of artistic fields. Drawing from electronic, software generated and sound art, light installation and science, my practice-based research generates new modes of experiencing the physical and immaterial architecture of the Sun-Earth cohabitat.

Through the autopoiesis of solar observation data and emphasizing the Sun-Earth symbiosis I reimagine the scientific data as cultural phenomena narrating our perception. The word 'symbiosis', which initially comes from biology marking an interspecies mutual relationship, is here used to expand symbiotic relations beyond the Earth's atmosphere, interlinking the historic dichotomy between the Sun and the Earth. With this new framing, I acknowledge intra-relations between the two astronomical bodies (Barad), which can be found through the comparison of observational data of the Sun and the Earth. How similar are patterns, rhythms, and phenomena on the solar surface, recorded in the different types of burst and plasma structures to soundscapes and light conditions on the Earth? Through this unusual approach of composing sound, winds and waves, solar spikes and birds, bursts and wales sounds, songs and shouts sonify the Sun-Earth symbiosis.

For me, the Sun presents not only an excess of energy (Bataille), powering life on Earth, but has an agency and is a recipient of specially designed sound compositions.

Do solar observations tell us aesthetic narratives? Might raw unfiltered data, errors, and glitches captured by sensors hold important stories? How does coding hold an aesthetic translation of science, while data

appear to have a cultural value? I am referring to algorithm aesthetics and, more specifically, to Luciana Parisi's book "Contagious Architecture". There she introduces the autopoietic ontology of computational data in machine generated cognition. The autopoiesis puts light on autonomous reproduction and creation, therefore the experiments in this research draw the foundation for self-directing, aesthetical, knowledge and narrative science-art interaction.

With this multidisciplinary research, interconnecting science and art, I will investigate closer the work of Alexander Chizhevski, pioneer of Russian cosmism, who presents a great example of merging different research fields in science as solar observations, history and natural sciences to signify the importance Solar radiation on our existence. Chizhevski's unusual link of physical factors of the historical processes is still debated, but the influence of solar radiation on living organisms is undeniable. While technological advancements help us expand the image of our space-architecture realm, to grasp the different materiality and influences, Object Oriented Ontology (G. Harman) links scientific naturalism and social relativism to draw attention to the importance of everything existing (T. Morton). This philosophical approach points out the intra-connectivity(Barad) and the symbiotic relations in our realm in all the possible scales and factors, and recognises the expanding of this symbiosis beyond the earth's atmosphere.

Research questions

- (1) What are the relational patterns between the Earth's phenomena and the Sun's fine structures in the solar plasma, from a human perspective?
- (2) Light - solar and artificial, inevitably brings darkness in equal importance. What is the role of the shadow - architectural and human in influencing our perception? How does the play between both bring memories and change perception?
- (3) What are the different modes of experiencing architecture, physical and immaterial? How can we construct space-time realm stories of the sun-earth symbiosis through artistic interpretation? (4) What added value for science can art create?
- (5) Do solar observations tell us aesthetic narratives? Might raw unfiltered data, errors, and glitches captured by sensors hold important stories? Often, this information is filtered by scientists, assumed to be unnecessary, background noise.

Bibliography

- Barad, Karen, 2007, Meeting the Universe Halfway, Duke University Press
- Bratton, H. Benjamin, 2015, The Stack, MIT Press, USA
- Chizhevski, Alexander, 1984, The Earth Echo of the Sun Storms (in bulgarian), Наука и Изкуство, Sofia, BG
- Parisi, Luciana, 2013, Contagious Architecture Computation, Aesthetics, and Space, MIT Press
- Morton, Timothy, 2017, Humankind, Verso, London/ NY

Design Driven Research

suNEARth

sun - earth interconnection in frequencies

suNEARth is a hybrid, multimedia installation intertwining the material and the immaterial through the use of images and sound. suNEARth combines and encompasses 2 works of mine; a digital interface, which uses radio observations of the sun to generate sound compositions, and monotype silkscreen prints interpreted by astronomers from the Royal Observatory of Belgium as if they were scientific graphs of data. The aim is to delicately overlap tools and methodologies from the scientific and the artistic domains to highlight commonalities and divergence. The aim of this investigation is to connect the scientific and artistic methodologies to analyze and translate recorded phenomena, layering languages and interpretations intrinsic to each field.

Technique

The prints are abstract graphic works, produced in a monotype technique, which means that each print is unique, as the daily observations of the Sun, can never be the same. Often artists take inspiration from the scientific objectives and methods, interpreting science through their means of expression. In this particular artwork, I reverse the process by inviting astrophysicist Dr. Jasmina Magdalenic to interpret my work. She could easily reimagine observational phenomena and patterns in the artworks. I asked her to write on the prints directly as for me they are collaborative work, complete by both of us.

The sound compositions result from a phenomenological comparison of the structures found in radio emissions of the sun and sound experienced and recorded on the Earth. This method derives from the similarities in rhythms and cycles patterns in both the Sun and the Earth. As a result, I have developed a visual score/rhythm manifesto, a site-specific installation to meet the acoustic experience of experiencing the Sun on the Earth.

Keywords: radio-observations, visual score, collaboration

Biography

Pepa Ivanova

KULeuven, LUCA School of Arts, Ghent, Belgium

2nd year PhD Candidate in Arts

info@pepaivanova.com



Pepa Ivanova is an interdisciplinary artist and researcher based in Brussels. She is a HISK, Ghent Laureate (2017), and she holds an Advanced Master in Arts from LUCA, Brussels (2013), and MA in Sculpture at the Royal Academy, Antwerp. While in Bulgaria, she studied Porcelain and Glass design in the National Art Academy, Sofia.

Her recent works question the epistemological values of numeric languages and their scientific and art translations. Fascinated by how to materialize temporality, she constructs decaying installations, and she composes light and sound experiences, as well as physical scenarios to interact with.

Currently, her works are exhibited at the 20th Small format in Paper Biennial, Nisme, Design Museum, Ghent. She has been exhibited at NOVA XX exhibition at Centre Wallonie-Brussels in Paris among other female artists, with an emphasis on art, science and technology, KIKK festival, Namur, at KANAAL, Brussels, De Warande, Turnhout, Goethe Institute, Sofia and Thessaloniki, Sofia City Gallery. She has performed at M HKA and De Singel, Antwerp, Z33, Hasselt, CAMP Festival Stuttgart.

Pepa's current research on the light on earth is supported by KIKK, Namur and funded by Wallonie Government, Belgium and is part of the objectives of her Ph.D. in LUCA, Ghent/ KULeuven with focus on autopoietic of observational data.