

Artist: Andrés Rodís

Title: *Outro e sobre si*

Science and art share a drive to analyse, reflect and advance, pushing beyond the boundaries of what is known, shedding light on the world we inhabit and our relationship with the other, and exploring reality from complementary perspectives.

For more than a century, quantum mechanics has transformed our understanding of the universe through concepts that challenge our intuition. Heisenberg's uncertainty principle states that it is impossible to determine both the position and velocity of a particle simultaneously with arbitrary precision. The principle of superposition, one of the cornerstones of quantum mechanics, allows a physical system to be described as a combination of several possible states at the same time. These ideas are far from mere conjecture: they have precise, calculable consequences, repeatedly confirmed by experiments that have put this theory to the test, and underpin many of the technologies we use in everyday life.

The implications of these principles have extended far beyond physics, exerting a profound influence on philosophy and the arts. *Outro e sobre si* explores the concept of superposition and the possibilities it opens up for artistic practice, inviting us to take part in an exploration of the boundaries and limits of the artwork.

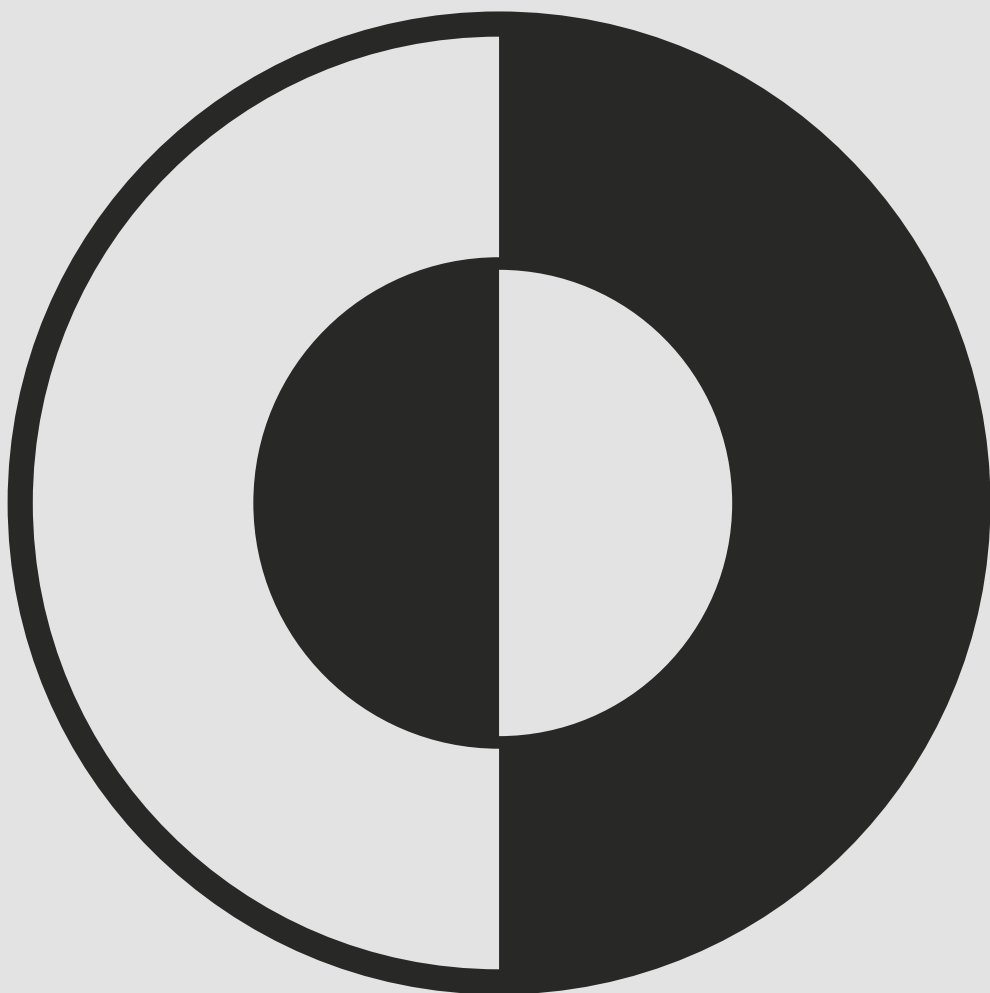
Outro e sobre si is a project by Andrés Rodís, developed as part of the first edition of the ArtLab IGFAE – Cidade da Cultura REGA Residencies, which took place between February and April 2026.

ArtLab IGFAE
Residency

Andrés Rodís
Outro e sobre si

Cidade da Cultura
REGA 2025

IGFAE
ART—LAB





The ArtLab IGFAE — REGA Residency has been conceived as an experimental platform enabling artists to explore the potential and implications of physics by investigating possible connections between art and science.

Founded in 1999, the Instituto Galego de Física de Altas Enerxías (IGFAE), a joint research centre of the University of Santiago de Compostela and the Regional Government of Galicia, coordinates and promotes scientific and technical research in particle physics, astroparticle physics and nuclear physics, alongside a growing body of work in cosmology and quantum science and technologies. The IGFAE conducts theoretical, experimental and knowledge-transfer research, with the centre participating in major scientific infrastructures such as CERN, the Pierre Auger Observatory, LIGO, GSI/FAIR and HyperKamiokande. It was the first research centre in Galicia to be recognised as a María de Maeztu Unit of Excellence by the Ministry of Science and Innovation, in 2017, and its accreditation was renewed in 2024. It is also part of the Regional Government of Galicia's CIGUS network of research centres, which recognises the quality and impact of its research.

As part of its commitment to steering its work towards more Responsible Research and Innovation (RRI), in dialogue with society and its immediate surroundings, the centre launched the IGFAE Labs (ArtLab, EduLab and TechLab), conceived as spaces where art and science meet and where new initiatives can be discussed with external stakeholders and collaborators. This gave rise within ArtLab to series such as *Transfronteirizas*, running since 2020, and exhibitions such as *Cosmoloxías* (with Irene Dubrovsky, Pazo de Fonseca, 2019) and *Instrumentos de visión* (with Armin Linke, Mónica Bello and Arts at CERN, Igrexa da Universidade, 2024).

The **Fundación Cidade da Cultura de Galicia**, a partner organisation in the ArtLab IGFAE residencies, was established on 27 December 1999 as ‘an organisation of a foundational nature, of focused on Galicia and non-profit, whose assets are permanently allocated to carrying out the Institution’s general-interest purposes’. The purpose of the Fundación Cidade da Cultura de Galicia is to create, operate and promote areas or centres devoted to cultural, communications and technological conservation, production, exhibition and consumption, forming a multifunctional, multidisciplinary and unifying space conducive to cultural interaction.

The Fundación Cidade da Cultura de Galicia has been conceived as a project platform for the development of Galician culture and society. It creates opportunities and energises Galicia’s cultural system as a whole by promoting and projecting culture in its broadest, most innovative and international sense.

— Outro e sobre si

Otro y sobre sí is an artistic project developed by Andrés Rodís (Santiago de Compostela, 2000) during the first edition of the **ArtLab IGFAE — REGA Residency 2025**.

This exhibition is the result of an investigation into structures of duality in painting practice, developed through an interdisciplinary dialogue with quantum physics. To explore this question in greater depth, the artist takes as his starting point an earlier project, *Ad'dâd: o engano da ortiga* (University of Alicante's Museum, 2025), which drew on the concept of *ad'dâd*, an Arabic term referring to an auto-antonym: a word that can mean, simultaneously and depending on context, one thing and its opposite. This concept leads him to reconsider the diptych as a provisional relationship between units that share boundaries and generate open-ended meanings.

During the research process for this residency, Andrés Rodís connects this question with the emergence of quantum physics, which broke with classical notions of duality. In particular, he reflects on the double-slit experiment, which shows that matter can display wave-like or particle-like behaviour depending on the conditions of observation. This behaviour, far removed from our intuition, has its basis in the principle of quantum superposition. Before measurement, a system can exist in a combination of different states. In the experiment described above, this takes the form of a superposition of the possible paths corresponding to the particle passing through one slit or the other. Only at the moment of measurement does this superposition collapse into one of the possible outcomes.

During his residency at the IGFAE, he discusses these questions with researchers. In quantum mechanics, superposition does not simply mean that a particle behaves simultaneously as both a wave and a particle. In the double-slit experiment, it means that its state simultaneously encompasses the different possibilities of passing through one slit or the other. These possibilities interfere with one another and are not simply the sum of classical probabilities. Thus, although each particle is ultimately detected at a specific point, measurements of many particles produce an interference pattern similar to that generated by waves in a fluid. Something similar occurs with neutrinos, elementary particles produced in the Sun's interior that may exist in a superposition of quantum states as they travel towards Earth. This means that their flavour – that is, the type of neutrino – may differ at the point of detection from the initial state.

In this sense, the superposed state, or potentiality, of matter collapses at the moment of measurement. Andrés Rodís is interested in the shift that quantum physics brings to the concept of measurement compared with earlier physics. He also discusses with IGFAE researchers how physics seeks to 'fine-tune' measurements of physical quantities and reduce human error. The apparatus must be optimised to achieve a precise measurement of a pre-existing phenomenon that is 'ready' to be measured. Historically, measurements could vary because of the imprecision of measuring devices and traditional units such as the *ferrado*, *puñado*, *haz* or *jornal*. Centuries of research have made it possible to approach the object of study ever more closely, and to increase the accuracy of measurements.

However, the uncertainty principle formulated by Werner Heisenberg – which states that certain pairs of physical quantities, such as a particle's position and momentum – cannot simultaneously be determined with arbitrary precision, may seem counterintuitive in relation to these ideas of measurement and precision. It does not seem possible to separate the apparatus from the system being measured. At this point, Andrés Rodís turns to Karen Barad's ideas about the relevance of this question to the ontology and epistemology of science, since the observer cannot remain separate from what is observed.

Drawing on Niels Bohr's ideas, Barad speaks of agential realism. In quantum physics, measurements are not concerned with the study of a substance or system whose properties have been defined in advance. So as to achieve experimental objectivity and ensure that an experiment can be reproduced, rather than interaction between two or more independent elements, we ought to refer to intra-action. The observer, who does not necessarily need to be human, is not separate from reality; rather, they actively intervenes in it and assume responsibility for its intra-actions. Values of position or momentum must be measured with different apparatuses, because each measurement produces and fixes a value that was previously neither determined nor undetermined, but entangled.

From this perspective, the artist enters the IGFAE's nuclear and quantum research laboratories to engage with the experiments being conducted there. There, he encounters complex devices for measuring radiation and delicate crystals designed to detect cosmic rays. Once again, the specific technological infrastructure is essential to prevent the surrounding environment from interfering with the measurements. In these laboratories, he was given access to images produced using a neutron scanner. At the USC Radio Physics Laboratory, with the support of researchers from the Neutron Insights team, the artist produces gamma-ray images and tomographic scans.

The objects selected to produce these images were related to one another: waste from earlier working processes found in the studio, bone fragments and other objects recovered from the ground, among other materials. The interest of this selection lay in questioning the relationship between signal and noise, taking as an object of 'measurement' something that had been regarded as residue in an earlier 'measurement'. Noise thus becomes a signal.

The power of these images prompts him to reflect on observation, intervention and the incompatibility between representing and measuring. They are images produced, quite literally, through material passage and intervention, as both the apparatus and the surrounding environment act upon the object. For Karen Barad, there is no such thing as non-intrusive measurement, because observational distance is impossible. The apparatus also 'looks', and the phenomenon is constituted through the relationship between the parts.

Andrés Rodís reconsiders these ideas and their possible links to the questions underlying his practice, establishing relationships between images and texts that do not necessarily come from physics. He does so in the form of an image atlas, seeking connections between fields such as art, biology, physics, archaeology, anatomy and literature.

During the production phase at REGA in the Cidade da Cultura, he works in parallel across several lines of enquiry opened up by these relationships between images, conversations and texts during his residency at the IGFAE. All of them revolve around superposition as a probabilistic, potential state and make the act of measurement a determining factor.

For instance, he takes the object itself, namely the painting, as a 'record' of the pictorial act. Yet many other things happen simultaneously during the production of that painting. Paint falls to the floor as a result of movements, trajectories or accidents. At a smaller scale, the concrete floor gradually erodes, while dust particles, insects and other materials accumulate. These events, occurring within a specific span of time, can also function as another kind of record of the action.

In this way, the monochromes in the *'afā'* series use material sieved from the studio floor and mixed with latex as the 'pigment' for the paintings. The colour is determined by the specific area from which the material was collected.

These monochromes return to the floor, where they are sanded. In the process they once again shed 'residues' and take on patterns that reveal, by way of frottage, the 'topography' of the floor. The 'afā series takes its title from this Arabic auto-antonym which, as linguist Abeer Hussein Abid notes, can mean both to add and to erase. Thus, for example, a footprint is erased in the desert not through the subtraction of material but through the addition of sand.

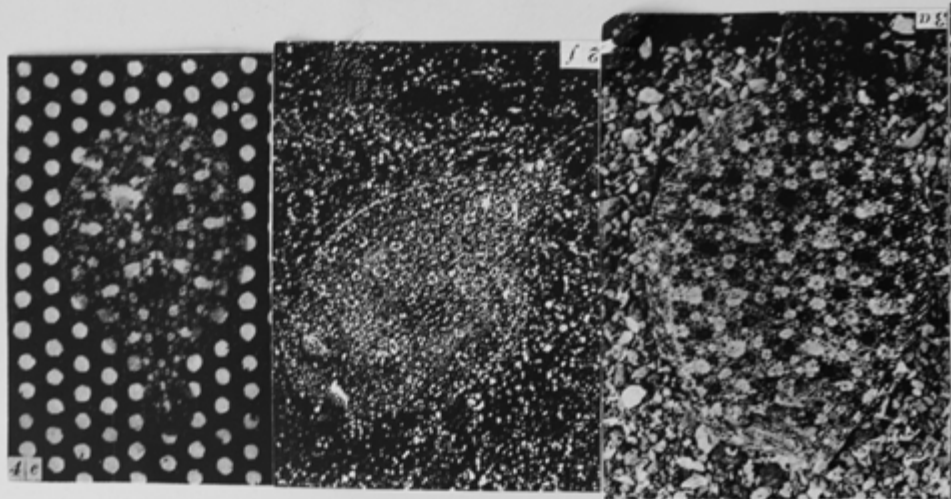
The interplay between subtraction and addition that unfolds in the practice relates to the workings of *ad'dād*. Just as noise can become a signal, subtraction and addition can operate on meaning, form and matter itself.

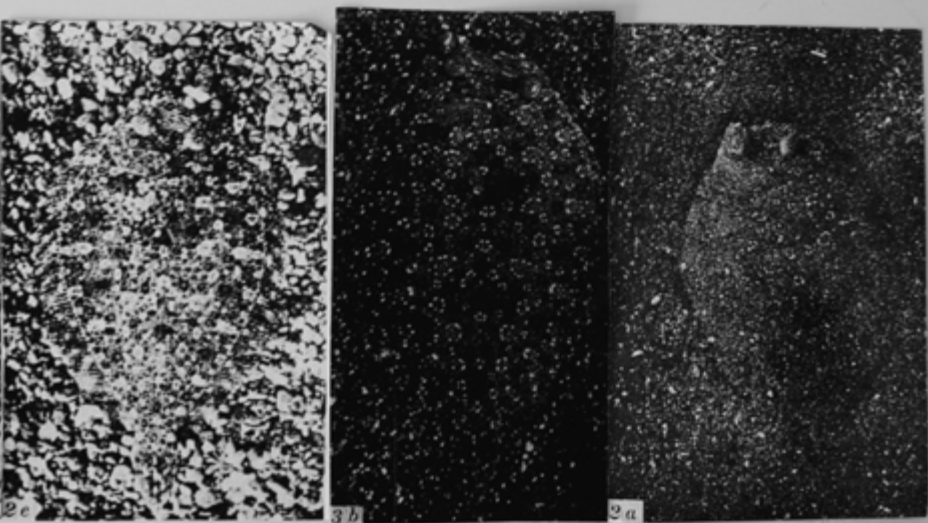
In connection with this, another line of enquiry developed during the residency was camouflage, understood as a twofold process. On the one hand, it entails the concealment of an organism by altering how its body is perceived; on the other, it can operate through a cumulative, additive process. Perception thus becomes a constitutive moment. Faced with a potential event, agency determines what may happen: whether or not it is detected. Camouflage also resonates with concerns specific to painting, such as the relationship between ground and form, or between painting and frame.

This interest in the potentiality of objects ran through both the residency and production periods, as the artist himself explains:

'I was not seeking a metaphorical, analogical or illustrative correspondence between quantum physics and art, since it is clear that each field has its own specific language and bodies of knowledge. Rather, readings, conversations, images and practices were able to generate an intermediate space of reception in which these specific forms of knowledge could intersect, giving rise to a series of works that, like an atlas, remain always open.'











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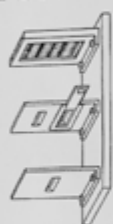
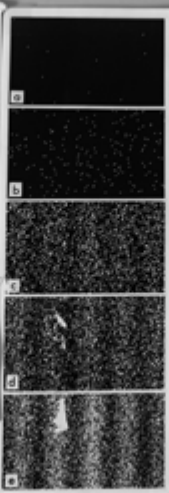
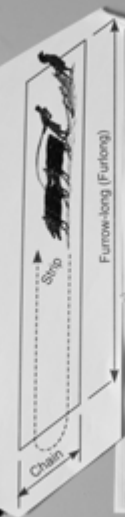
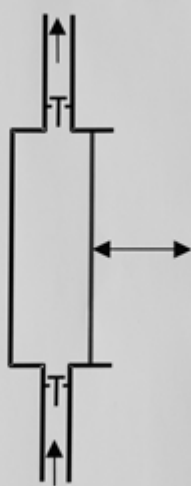


FIGURA 4

“Varying the size of the unit and the unit itself”





Confirmar:

- ~~Interacción~~ Cantar + alimudeira
- ~~Interacción~~ Calor e resaltar

Da andar o brazo
ata o codo cerrar
(Vitr) o puno e metelo o
fondo da alimudeira
Supr (carra grande).

Física o Vitr Avitaminado

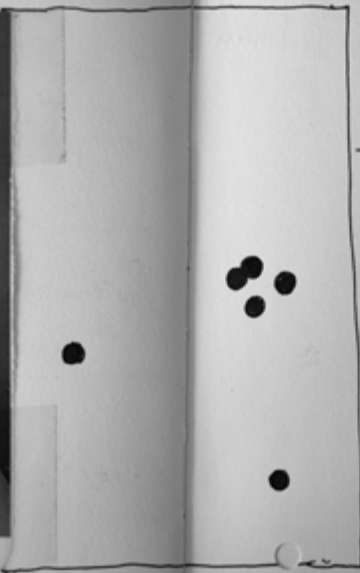
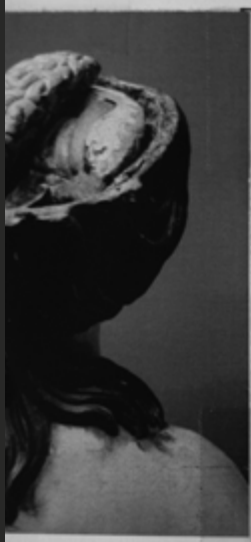
Física o Vitr
(pogallo o miúdo
en vitrio) Espandir

PROBLEMA
LA MEDIDA

Física clasi en el sistema auto de

En el sistema auto de

no existe fotolmente?



Osilación entre
sabores en los
neutrinos *

PARALATE

Varación aparte
de la posición
de un objeto, es-
pecialmente en astro,
el cambio de po-
sición del observador

Anuncios en
los Embryos de
Hobbes. *

Exposición organizada
pola Fundación Cidade
da Cultura de Galicia en
colaboración co IGFAE

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EXPOSICIÓN

Concepción
Andrés Rodis

Asesoría curatorial
Natalia Poncela

Coordinación científica
Carlos A. Salgado

Asesoría científica
Persoal investigador do IGFAE

Coordinación exposición
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Tradución
Traducción
One Document

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Diseño gráfico
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