OPEN CALL FUNKEN

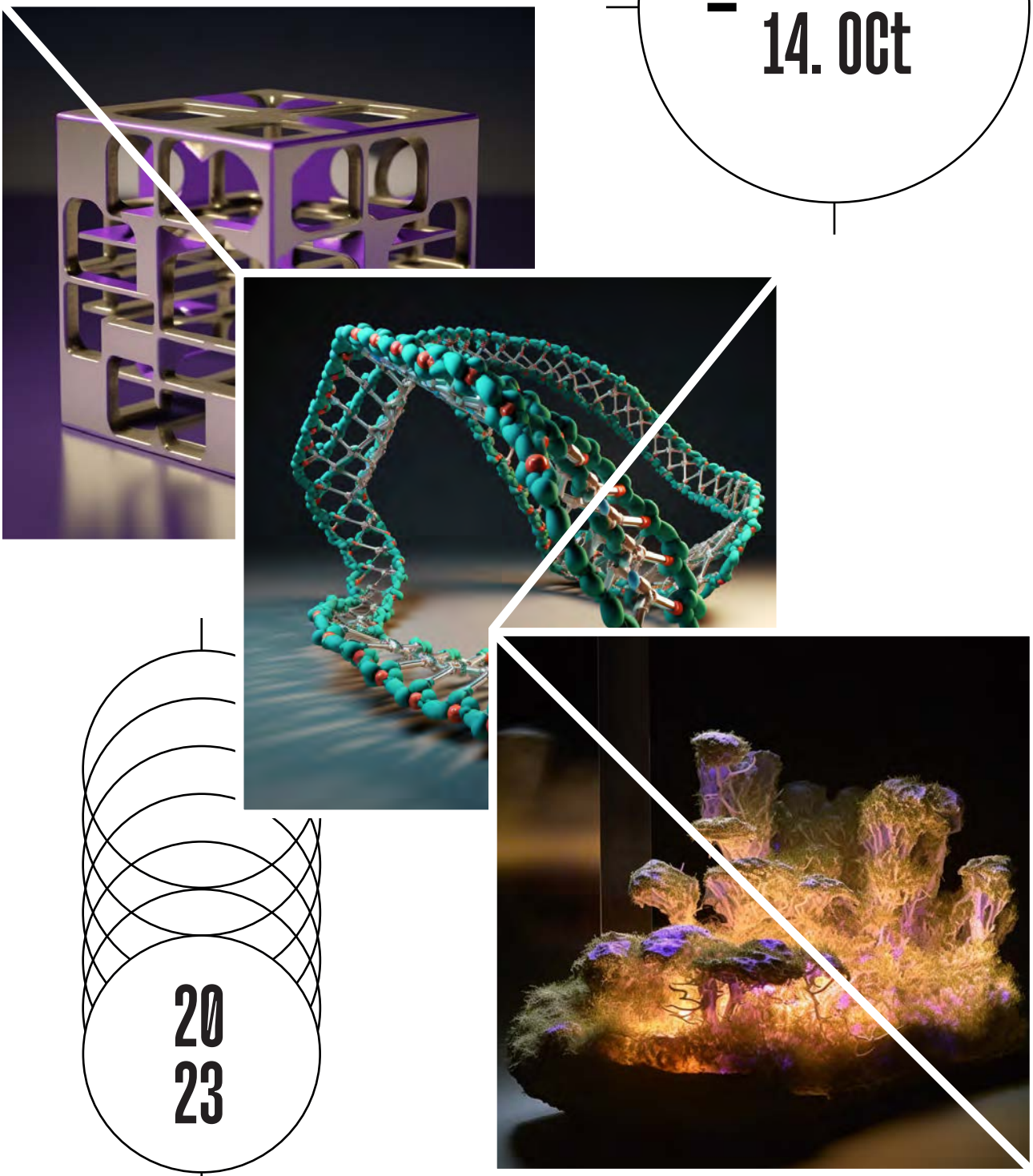
RE:SOURCING

SHAPING FUNGI, DNA AND INFORMATION THROUGH ART AND SCIENCE

SUMMER | **ACADEMY**

17. JUL – 14. OCT

Academy for artistic - technological **research**



2023

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APPLY NOW!

FUNKEN ACADEMY – RE:SOURCING EUROPEAN SUMMER SCHOOL 2023 17. JUL – 14. OCT 2023

SHAPING FUNGI, DNA AND INFORMATION THROUGH ART AND SCIENCE

OVERVIEW

A project by Klub Solitaer e.V., Ars Electronica, WRO Art Center in association with Fraunhofer ENAS and Fraunhofer IWU

Location
- Chemnitz and Dresden, Germany and remote

Program dates
- 17.07. – 23.07.2023; 2 additional sessions onsite, 2-3 days each
- online sessions in the meantime on a weekly basis

Who can apply?
- Master Students, postgraduates, young professionals from artistic fields of study

How to apply?
- via online form

Application Deadline
- May 23th 2023 – 11:59pm CEST

Language
- English

Time Requirement
- There are three course units each 1 week full time on site, the rest is part time individually set for each of the three courses
- *If serious reasons prevent you from participating for the whole duration of the program, exceptions can be arranged. Please contact us to work out a solution.*

Stipends
- There are no tuition fees. We will support travel expenses, accommodation and material costs with a stipend of 1900 € per person.

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FUNKEN ACADEMY – RE:SOURCING EUROPEAN SUMMER SCHOOL 2023

SHAPING FUNGI, DNA AND METAL POWDER THROUGH ART AND SCIENCE

+++ 30 Students – Experts, Laboratories, Lecturers, Mentors – 3 month hands on experience with cutting edge technologies +++

The project is being realized in collaboration with Fraunhofer Institute for Electronic Nano Systems (Chemnitz, Germany) , Fraunhofer-Institute for Machine Tools and Forming Technology IWU (Dresden, Germany). As well as Ars Electronica Linz (Austria), WRO Art Center, (Wroclaw, Poland) and Klub Solitaer (Chemnitz, Germany) as the cultural project partners. For the summer school the consortium partners collaborate with each other, triggering European knowledge transfer and cross-sector innovation by collaborating with high-tech institutes, to integrate new technologies with artistic trends in the context of an applied artistic course program. The course results will be internationally exhibited and thus be made accessible, tangible and feasible for a broad public.

The technologies that the research partners provide for the FUNKEN Academy – re:sourcing programm offer artists specific and novel possibilities in working with different matter, such as metal, DNA, and fungi. Over the term of the course we use them to expand the media and possibilities of artistic creation and modelling. At the same time, we invite participants to reflect artistically on the technological procedures.

LBPF technology enables the production of delicate solid metal structures in a 3D printing process. In another 3D printing process, self-growing, evolving structures can be produced from mycelium-impregnated substrate. With another technology and in a completely different dimension, DNA strands can be folded on a nanoscopic level.

The FUNKEN Academy will experiment with these technologies. Introductory sessions and thematic sessions will be offered across courses for all participants:

Key factors of this year's program:

- entrance to high-tech facilities and it's researchers in a small group
- international participants and supervisors
- input by experts from science, technology, art and humanitarian work to business and politics
- 3 weeks on-site in Chemnitz and Dresden
- collaboration and co-creation in teams
- guided and supported by a group of facilitators
- no tuition fee.

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COURSE A
SHAPING THE INVISIBLE – FOLDING OF DNA STRANDS AND RENDERING STRUCTURES IN NANO SCALE

CAROLIN LIEBL AND NIKOLAS SCHMID-PFÄHLER
FRAUNHOFER ENAS

All living creatures carry their genetic information in the DNA in the nucleus of each cell. It contains the genes that shape humans, animals or plants into what they are. With the increasing knowledge of DNA, from a source-code of natural creation it is coming more and more into consideration as a technologically utilizable material also.

By using DNA technologically a large field of ethical yet also practical questions arise.

In this course, participants embark on a journey into the nanosphere, to process DNA. In collaboration with scientists, we make DNA fold and create tiny structures that become detectable with the help of an atomic force microscope (AFM). The resulting images capture the structures beyond their short lifespan. They can only be seen through the microscope as they are otherwise far beyond the limits of human perception.

The experience of scientific processes and procedures in the laboratory serve the participants as a starting point for their artistic examination of the material generated. Not only the limitation of human perception by moving in the nanosphere, but also the extraordinary responsibility that goes along with working with DNA can be highlighted. Building on this, the role of one's own experience of scientific processes in relation to such a debate is to be reflected. The participants' resulting reflections will be translated into an artistic medium of their choice, thus creating a link between the scientific and artistic spheres. In this way, we try to make the invisible tangible through individual artworks.

PRACTICAL

- close collaboration with scientists at Fraunhofer ENAS
- learn to design own DNA structures using design and simulation software.
- introduction to the technical processes of laboratory work and the subsequent initiation of biochemical processes for folding DNA
- insight into the use of the atomic force microscope (AFM) and associated software.
- analysis of the resulting data in dialogue with the scientists
- translation of scientific data and personal experiences through the process into individual artistic expression

Requirements for Course A

- willingness to learn professional scientific software and processes
- interest in lab-specific work

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COURSE B
METAL DATA SOLID CULTURE – INFORMATION AND ITS PROTECTION AS A MEDIUM OF ART

PAWEL JANICKI
FRAUNHOFER IWU

Contemporary culture strongly binds information with the technological medium through storage and distribution platforms. Information is thus mostly contained in an electronic context, which is by its nature always temporary and continually needs maintenance and renewal. Furthermore the technical infrastructure is often private property.

Culture, however, cannot last and develop without information continuation. It needs the possibility of building new forms on existing information and the possibility of storing information for the future, without censorship, evaluation, tailoring to current conditions.

In this course we will tackle physicality in the era of digital reproduction and technologies as part of these technologies, not their opposite or past. We will discuss the role of information in culture, the independence of information (freeing it from its electronic context), the importance of its transmission and storage.

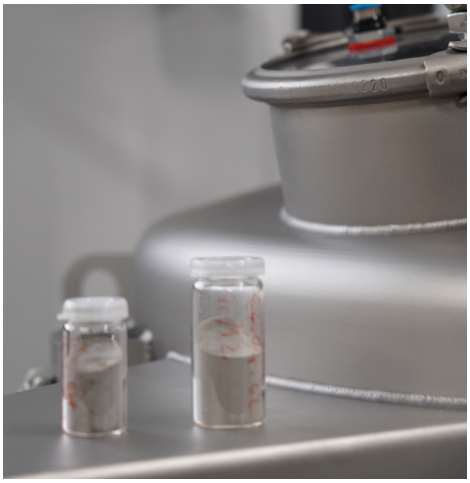
We will experiment with art as a method of dealing with information/data. Thus the participants will develop a shared experience of experimenting with advanced technology in a cultural context, a collective consciousness enriched by the exchange of knowledge and experience.

Finally we will use an advanced metal printing process to create objects and artworks that use information as a medium. Therefore participants will learn how to describe objects in code for the use of advanced 3D printing in metal (LPBF). They will get to know a practical workflow to work with data intended for printing in metal using publicly available resources and in public domain, using open licenses and considerable demand for computing power.

They will then develop their own protocols for processing information into physical objects prepared by themselves and depending on individual preferences and own artistic approach.

PRACTICAL

- introduction: looking at a work of art as an expression of an information system — from the point of view of art history, theory and practice
- introduction to the generative/procedural creation of computer models for the use of advanced 3D printing in metal (LPBF).
- Mastering a practical workflow to work with data intended for printing in metal



Requirements for Course B

- The workshop invites people with different backgrounds and skills to participate,
- Previous experience and a basic knowledge in computer programming (especially Processing) are helpful.
- Interest in the use of generative and parametric techniques

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COURSE C
I N T E R S P A C E CO-CREATION WITH FUNGI
NOOR STENFERT KROESE
FRAUNHOFER IWU

The course I N T E R S P A CE focuses on co-creation with fungi. Participants will explore the concept of mycelium as a material for 3D printing, and the implications of working with a living material. The participants will work on creating the substrate to print in 3D with mycelium, and have the opportunity to get to know the fungi they are working with.

The use of mycelium in 3D printing has the potential to revolutionize the manufacturing industry. As this new technology develops, it raises questions about our relationship with mycelium as a material. Working with mycelium is at the beginning of its development and allows for a new narrative on the use of natural resources in the industry.

While mycelium is a sustainable replacement, it is essential to ask ethical questions that may not always benefit the industry in the first place. We question what would be a new way of biofabrication from a collaborative perspective? What can we expect from fungi, and what can they expect from us? In this context, we will explore what it means to work together with fungi and create a collaborative workspace with them.

The summer school will focus on creating a substrate suitable for printing in 3D with mycelium. Mycelium is an expert in bridging interspaces, and we will research shapes and forms that allow for co-creation between us and the fungi.

By approaching this technology from a collaborative perspective, we can create a more symbiotic relationship with the fungi and work towards a more sustainable future for all.

PRACTICAL

- Basics about fungi's environment, their needs in terms of light, temperature, humidity, and contamination
- Substrate workshop
- Workshop on how to work collaboratively with fungi
- Printing open structures to observe the growth and qualities of mycelium
- Observing growth through time-lapses and scanning of samples
- Proposed shapes by the participants based on observations.

Requirements for Course C

- The course is suitable for anyone with interest and patience of working with fungi.

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ADITIONAL INFORMATION

WELCOME TO THE FUNKEN ACADEMY

WHAT IS THE FUNKEN ACADEMY?

In the FUNKEN Academy, artists, technological institutes and research facilities come together to experiment in the field between arts and technology. Since 2020 various workshops with different research and artistic partners have been held.

WHAT IS THE 2023 FUNKEN ACADEMY EUROPEAN SUMMER SCHOOL?

The FUNKEN academy's European summer school is devised to be an interdisciplinary Pan-European collaboration network among cultural institutions, high-tech institutes, experienced artists and young creatives alike. At the intersection of arts and technology, it creates novel content for artistic education and production, sparking an eye-level discourse around the potential of new technologies for general society as well as the art world.

Through artistic collaboration, the summer school programme combines serendipity with scientific research processes, developing sustainable innovation by providing an aesthetic-poetic view to technological research and societal issues, bringing together young European future professionals form the arts (students and post-graduates) in the generation of new ideas and society at large into the ensuing discourse.

The Summer School for young artists is created by renowned artists, which are selected by an international curatorial consortium formed by the renowned cultural institutions and cooperation partners Klub Solitaer e.V. (Chemnitz, Germany), WRO Art Center
(Wroclaw, Poland) and ARS Electronica Center (Linz, Austria).

The course results will be internationally exhibited in Chemnitz, Wroclaw and Linz.

WHY HAS THIS PROGRAM BEEN INITIATED?

We live in a time characterized by technology and the idea of progress, a time full of transformation which is invisible to the vast majority of society. Although the societal effects of digitization and automation can be felt by all of us, the underlying process is no longer perceptible, yet shapes the way we live and interact.

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The increasingly rapid developments in the fields of nanotechnology, biotechnology, synthetic biology, augmented reality, artificial intelligence and many more will become one of the greatest challenges for society in the coming decades in terms of ethics and values. Technology and science are not only changing our environment, but our bodies and our behaviors. The transformation from an industrial to a digital society, in which robots and autonomous systems take over production, supervision and creation and processes are increasingly automated, lead to potential improvements of living but also uncertainties entailing fears for the future.

High-tech institutes are breaking new ground every day in the technical field. Their research and innovations are built on digital progress, as for example conceived on the basis of ever smaller sensors and more powerful computer chips and new technologies like virtual modeling. Artists, on the other hand, usually only gain access to these technologies once they have been incorporated into products.

Our project is intended to enable artists to carry out long-needed mediation work, to make complex processes and technologies easily accessible. Change is not brought about through information, technology and science alone, but through experiments generating ideas that precede and accompany the change.

Working jointly as cross-innovators at the institute, the project shall become a starting point for sustainable collaboration between artists and engineers, culminating in long term projects and/or employment perspectives.

We provide European artists with access to the laboratories, machines, and current research results of high-tech institutes and generate an intercultural dialogue which creates poetic-aesthetic, but also practical perspectives on the technological and societal changes that accompany digitalization. Hence, creative solutions to said problems are tested, laying the ground for social and economic innovation.

ELIGIBILITY

The program is intended for participants from the ages of 18 on and from all disciplines, especially focussing on young professionals from the artistic and creative sector.Participants do not need to be currently enrolled in a formal educational program (university, school...).

Furthermore, all participants must have a valid travel insurance including health coverage for the whole duration of the program.

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TERMS OF PARTICIPATION

There are no registration and tuition fees for this program.

All successful applicants will receive full participation in the program including community events, excursions and social activities

APPLICATION

- Applications open: 2nd May 2023
- via online form
- Applications close: 18th May 2023
- Once the participants have been selected, they will be notified via email to then start arranging travel and accommodation.

The following details are requested for the application process (all information must be in English):

- Personal details
- Your educational background and interests
- your motivation detailing your interest/approach towards the selected class
- examples of works/portfolio/link to website
- recommended: additional materials reflecting your passion and expertise (artwork and project, prototype, research, system, activity, strategy and business plan, link to websites, etc.).
- When providing links, please ensure their accessibility and provide passwords whenever necessary,

Please fill in the application form via by **23.05.2023 (11:59pm CEST)** latest. No alternative forms of submission and no late applications will be accepted.

Please note that parts of your application, may be used for communication and made be public in case you are selected.

CONTACT

If you have any questions or require any support, feel free to reach out to our team via info@funken-akademie.de

PRIVACY

Klub Solitaer e.V. respects each person's right to privacy. We do not sell or distribute personal information for commercial purpose. Your application will be treated confidentially. Only selected members of Klub Solitaer e.V., Ars Electronica Linz GmbH & Co KG, WRO Art center have access to

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your application. Processing of the applicant's personal data takes place in accordance with the provisions of the General Data Protection Regulation (EU 2016/679).

SUPPORT

The program is organized by Klub Solitaer e.V. with Ars Electronica Linz and WRO Art Center and funded by the European Union. It is co-funded by Chemnitz 2025

ENTRY RIGHTS

The organizers and sponsors of the Funken Academy European Summer School intend to make the results of the Summer School accessible to the wider public. To achieve this, they intend to conduct a public relations campaign in print media outlets, radio and TV stations, and on the internet, as well as in various publications and by public presentations of the results of the said programme. The entrants hereby consent to making their activities available for these purposes as a condition of participation.

(There will be no commercial exploitation of the ideas and works that are created during the course of this FUNKEN Academy – European Summer School.)

PUBLIC RELATIONS AND DOCUMENTATION

Likewise as a condition of participation, entrants hereby consent to the material which is being created during the workshops, as a whole or in part, being used, stored to a data storage medium, and/or made public on the internet or via some other digital medium by Klub Solitaer e.V. or by a third party authorized by Klub Solitaer e.V. for purposes of public relations, advertising & promotion, documentation, archiving or scientific research.

The exercise of this right is restricted to activities for the purpose of disseminating information about and/or promoting the FUNKEN Academy. Prior consent is required for any activities that go beyond this scope and/or constitute commercial usage. In using such works, Klub Solitaer e.V. will accord all due consideration to the entrants' legitimate interests but assumes no statutory duty in this connection.

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Art, Technology & Society

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associated partners:

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