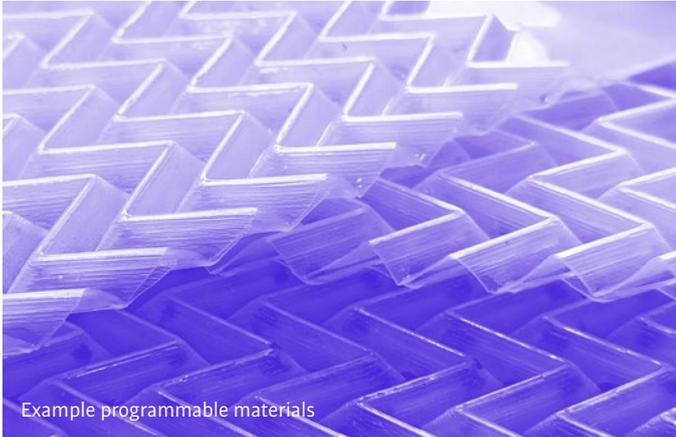


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A Discursive Design Class by FUNKEN Academy, in cooperation with the Fraunhofer Cluster of Excellence Programmable Materials



Example programmable materials

In the **FUNKEN Academy** by Klub Solitaer e. V., artists and high technology institutes as well as research facilities collaborate to jointly experiment in the field between arts and technology. In the context of a cooperation with the **Fraunhofer Cluster of Excellence Programmable Materials**, artists and designers are invited to investigate the novel programmable materials in a course by **Prof. Dr. Johanna Schmeer**.

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Workshop instructor: Prof. Dr. Johanna Schmeer

Prof. Dr. Johanna Schmeer is a designer and interdisciplinary researcher living in Berlin. She is a professor for design at Folkwang University of Fine Arts. In her research-based work, she explores intersections between design, art, science, technology and the future. In her projects, which work with designed objects and experiences, film and installations, she raises questions and presents ideas on technologically augmented ecologies, industrial material flows and the re-definition of humans in their interpersonal, geospatial and techno-social networks. She has a degree in Digital Media from UdK Berlin and a MA and PhD from the Royal College of Art London. Her works were published, awarded and exhibited internationally, at the Institute of Contemporary Arts London, the Stockholm National Museum, the Architectural Biennale Venedig and the Ars Electronica Center Linz, amongst others.

The Cooperation

The workshop is being realized in collaboration with Fraunhofer-Institute for Machine Tools and Forming Technology IWU Dresden, Fraunhofer Cluster of Excellence Programmable Materials, the Professorship

Basic Principles of Design at University Wismar and Klub Solitaer e.V. as the cultural project partner. Through the cooperation with the institute, the participants gain access to new materials, which are not yet available on the market.

Participants: Students and Postgraduates from artistic fields of study

Timeline: October 2021 - January 2022

October 4th 21 - October 6th 21 Introduction event in Chemnitz and Dresden with presentations on 3D-Printing, laser cutting and deep drawing for the creation of prototypes, as well as an evening program.
Regular consultations in the following.
24th of January 22 final presentation.

Organisation: Klub Solitaer e. V.
Place: Chemnitz, Dresden and remote
Partner institute: Fraunhofer-Institut für Werkzeugmaschinen & Umformtechnik

Nr. of participants: 10-15 participants
Participation fee: Free of charge

Application:
Please send us a letter of motivation and CV until **September 12th** by mail to info@klubsolitaer.de. We will confirm that your signing up and send you further information on the Workshop per Mail.

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Programmable materials

They change when different triggers are activated, they can be animated in a pre-defined choreography and lend objects and interfaces diverse characteristics by reacting to different conditions.

Programmable materials can execute complex functions. Similar to informatics, they are characterized by if-then-relationships (e.g. if they expand, their consistency changes) and are capable of saving changeable circumstances and reacting in customizable loops to external triggers.

They can, however, function without electronic components. As one-material-systems, they realize these capabilities merely based on their structure. Structures can be integrated into highly diverse materials, thereby turning them into programmable materials.

Their structures as well as their movements often resemble biological organisms. Through artistic measures from the field of discursive design, the workshop focuses on the "nature" of these materials, their characteristics and potential behaviours, as well as on their similarities to natural circumstances.

Concept

Can a shape-memory polymer function as an artificial larynx and be applied in sound-creation? Can programmable materials lend character to everyday objects? What if a household gadget running low on battery would communicate this by slumping in exhaustion? Which structures and characteristics derived from nature can be used in the development of new materials? And which philosophical questions arise in the process of creating artificial forms of nature?

In this workshop, we work with artistic methods from the field

of discursive design. This design approach raises questions and focuses primarily on experimenting with and discussing new ideas, without centering merely on problem-solving strategies. Discursive design reflects, tests and speculates with regard to applications of new technologies and materials and their potential, unconventional consequences on our everyday life. Workshop results can range from the visualization of thought experiments, interactive installations or prototypes, which create and communicate new perspectives.

Result

From the discourse originating in the tension field between science, art, design and society, insights on the general understanding of materials, new perspectives on these materials and innovative impulses for their useful applications are expected to be derived. The exchange shall trigger reflections, from which scientists and creatives can benefit. The results will be publicly presented in an exhibition or at a fair.

Literature

- Tharp, Bruce, and Stephanie Tharp. Discursive Design: Critical, Speculative, and Alternative Things. Cambridge: MIT Press, 2018.
- Dunne, Anthony, and Fiona Raby. Speculative Everything: Design, Fiction, and Social Dreaming. Cambridge: MIT Press, 2013.
- Fletcher, K., St. Pierre, L., & Tham, M. (Eds.). Design and Nature: A Partnership. New York: Routledge, 2019.
- Miyoshi, Kensho. Designing Objects in Motion, Berlin, Boston: Birkhäuser, 2020.

Funded by: