

# Matters of A

↖ Tangible interface for human-machine interaction by Anna Schäffner. Photo: Michelle Mantel  
↑ Structural textile project by Natalija Miodragović, Neeli Singer & Daniel Suárez. Photo: Michelle Mantel

## Matters of Activity

In the Cluster of Excellence »Matters of Activity«, researchers from more than 40 disciplines are investigating the activity of matter. Our central vision is to rediscover the analog in the age of the digital within the activity of images, spaces and materials driven by the integrative nature of the Humanities,

↓ 3D print of a scanned colony biofilm of E.coli by Cécile Bidan. Photo: Michelle Mantel

↑ »Fog Threshold« by Clemens Winkler. Photo: Michelle Mantel

the Natural Sciences and the different Design disciplines. Biology and technology, mind and material, nature and culture intertwine in a new way. In this context, the interdisciplinary research and development of sustainable practices and structures is a central concern in areas such as architecture and soft robotics, textiles, materials and digital filters, and surgical cutting techniques.

↑ »Vascularization« by Emile de Visscher & Igor Sauer. Photo: Konstantin Mitrokhov

Objects and materials are not thought of as passive and unadaptable, but rather as active, changeable and recyclable materials. The three closely linked research units »Practices«, »Structures« and »Code« focus on three different approaches to material activity: from the basic level of cultural material practices and the material's inherent active structures to the challenging idea of a novel kind of material code.

↓ »Architectural Yarns. Liquid Yarns« by Iva Rešetar. Photo: Michelle Mantel

# Activity

We are systematically investigating design research strategies for active materials and structures that adapt to specific requirements and environments. We focus on a new role of design, which is emerging in the context of growing diversity and the continuous development of materials and visualization forms in all disciplines.



↑ »Co-Weaving Biofilms« by Bastian Beyer, Iva Rešetar, Emile De Visscher, Regine Hengge & Claudia Mareis. Photo: Michelle Mantel

On the one hand, we are studying traditional cultural techniques such as »Weaving«, »Cutting« and »Filtering« in order to better understand the properties of materials. These partly artisanal practices produce, transfer or process materials. But they also generate knowledge by telling us something about the material, the creators or the environment of the produced goods. One aim of the cluster research is to examine these practices with a long cultural tradition and to make innovative processes out of them.

↓ »Exploring Filtering« by Veronika Aumann & Thomas Ness. Photo: ibid.  
↗ »Syntopia 1—Soma I Body« by Elaine Bonavia, Jessica Farmer, Johanna Hehemeyer-Cürten & Karola Dierichs. Photo: Michael Pfisterer

On the other hand, we are investigating the relationship between the material and its form and function, as well as how this can affect objects, people and architectural spaces. Our focus is on the merging of the symbolic and physical dimensions. We no longer conceive the material's inner activity as dysfunctional, but we recognize it as an operative code, re-inventing the analog in times of the digital.

So what does that mean exactly? In the future, you might see surfaces emerging from certain bacterial activities in ways that are closely linked to weaving processes. You might use »one-material devices« that are at the same time soft and hard, flexible and stiff or shape-changing materials that adapt to certain environmental necessities. You will visit exhibitions showing active objects and processes – so far fixed in a certain state. Or your surgeon will use an adaptive digital twin that helps to simulate the intrinsic activity of body tissue in order to make medical procedures even more accurate and safe in the long run. All this is made possible by a new culture of materials and a change of the perspective on the relationship between nature and culture, which is embodied by »Matters of Activity«.

Design: NODE Berlin Oslo

#### MATTERS OF ACTIVITY

- 40 disciplines
- More than 200 researchers
- 8 Cluster professorships

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#### DIRECTORS

- Wolfgang Schäffner (Director / Cultural History & Theory)
- Peter Fritzel (Co-Director / Materials Science)
- Claudia Mareis (Co-Director / Design & Design Research)
- Horst Bredekamp (Senior Co-Director / Art & Visual History)

#### HOST INSTITUTION

- Humboldt-Universität zu Berlin

#### PARTNER INSTITUTIONS

- Charité – Universitätsmedizin Berlin
- Freie Universität Berlin
- HTW University of Applied Sciences
- Max Planck Institute of Applied Sciences
- Prussian Museums of Decorative Arts, Prussian Cultural Heritage Foundation
- Technische Universität Berlin
- Weidensee school of art and design berlin

↓ »Myko.Plektonik« by Dimitra Alimpi-Lekka & Natalija Miodragović. Photo: Michelle Mantel  
↙ »West African wild silk cocoon. Photo: Michael Pfisterer

Matters of Activity is open for visitors  
Sophienstrasse 22a  
D-10178 Berlin

Postal Address  
Unter den Linden 6  
D-10099 Berlin

Phone +49 30 2093 66257  
Fax +49 30 2093 66255  
matters.of.activity@hu-berlin.de

Check our activities  
[www.matters-of-activity.de](http://www.matters-of-activity.de)



↗ West African horizontal treadle loom. Photo: Michael Pfisterer