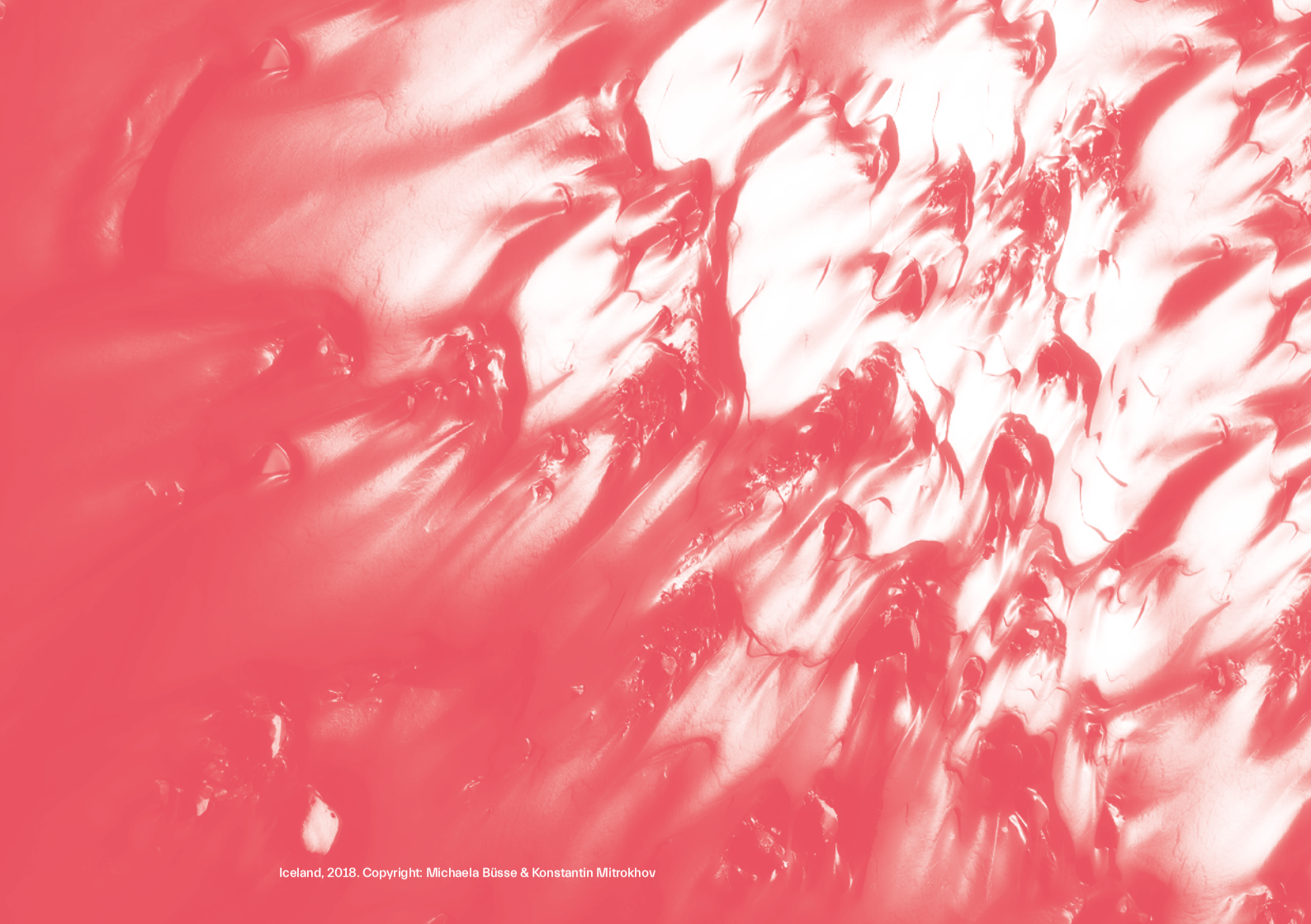
Deep Material Futures

Exploring the Different Temporalities of Active Matter

With »Deep Material Futures« we want to face the multiplicity of space, time, and scale. We raise the question of what goes wrong on earth, and how the different deep, slow, fast and future times intervene in the worlds to come. By looking at very different scales, from the internal structures of matter, the interaction of objects and living beings to geological formations and atmospheric dynamics, »Deep Material Futures« asks about the different temporalities of active matter, which not only shape pasts and presents, but futures. We want to discuss and rethink the potentialities, strategies and imaginaries of desirable futures. What new and other ways of politics, design, and ›healing‹ through materialized action might there be at all levels of space, time, and scale?

16 November 2022



Iceland, 2018. Copyright: Michaela Büsse & Konstantin Mitrokhov

Wastelands

Moderation: Dr. Anke Gruendel
Discussion: Alwin J. Cubasch
Prof. Dr. Robert Stock

Prof. Dr. Sandra Jasper

Botanical Alterlife

Wastelands are spaces of botanical discovery and collective memory. Ruins, former railway yards, and other wasteland spaces have produced a profusion of plants and animals, and have afforded a place for more-than-human life in the conception of urban spaces' inhabitation. In this talk, contemporary forms and prospective futures of wasteland spaces across various sites in Berlin and Luxembourg are traced. We discuss responses to wasteland spaces from early botanical studies to more recent artistic engagements with these experimental ecologies. It draws on recent feminist work on body-environment relations, including the feminist historian Michelle Murphy's idea of ›alterlife‹, to highlight the underlying structural dimensions that constitute toxic exposure, which are neglected in the botanical enthusiasm for novel ecologies flourishing in wasteland spaces.

SANDRA JASPER is Junior Professor for the Geography of Gender in Human-Environment-Systems at the Humboldt-Universität zu Berlin. Her research interests are in urban nature, soundscapes, and feminist theory. She is co-editor (with Matthew Gandy) of »The Botanical City« (2020) and co-author and co-producer of the documentary film »Natura Urbana. The Brachen of Berlin« (UK/Germany, 2017, 72'). She is currently completing a monograph on the experimental spaces of West Berlin for which she received a Graham Foundation grant. Her new collaborative research project »Re-Scaling Global Health. Human Health and Multispecies Cohabitation on an Urban Planet« (2022-2024), which is funded by the Berlin University Alliance Grand Challenge Initiative on Global Health, explores human-animal-environment relationships and the multiple links between planetary health, biodiversity, and environmental pollution in cities across the globe.

ALWIN J. CUBASCH is a Research Associate at the Cluster of Excellence »Matters of Activity« at the Humboldt-Universität zu Berlin. He is currently working on his dissertation and studies the interconnections of food, science, and medicine during the 20th century. Focusing on NASA's food-experiments during the early days of space flight, he researches how science, industry and military interests shaped food in space and on earth. He holds a master's degree from the Technische Universität Berlin in history of science and technology. At the Cluster, Alwin J. Cubasch's research oscillates between the history of material legacies, infrastructures and technologies of everyday culture with the aim to better understand how socio-technical materialities and cultural techniques select, filter, and preconfigure pathways of agency and shape the genealogy of our environments.

ROBERT STOCK is Assistant Professor for Cultures of Knowledge at the Department of Cultural History and Theory at the Humboldt-Universität zu Berlin. In 2017, he completed his PhD with a dissertation about cultural decolonization processes and documentaries between Mozambique and Portugal at Justus Liebig University Giessen, Germany, where he was a member of the International Graduate Centre for the Study of Culture (GCSC). Main research interests are the contemporary relations and cultures of knowledge of digital media and dis/abilities, the materiality of epistemic practices, Luso-African decolonization processes and postcolonial knowledge objects as well as human-animal-technology assemblages.

ANKE GRUENDEL is a Research Associate at the Institute for Cultural History and Theory at the Humboldt-Universität zu Berlin, a member of the research collective »Governing through Design,« and a member of the Cluster of Excellence »Matters of Activity. « at Humboldt-Universität zu Berlin. She holds a PhD in Politics from the New School for Social Research. Focusing on the political epistemology of complexity in public-sector design which privileges a material enactment of democratic norms, her research investigates how anticipatory governance and planning have become sites of critical inquiry.

Earthly Matter

Moderation:
Léa Perraudin
Discussion:
Prof. Dr. Karola Dierichs

Prof. Nigel Clark

Igneous Interventions: Working with Fire, Rock and the Inner Earth

The extended human family emerged in one of the most tectonically and volcanically active regions of the earth. Not only have ›we‹ learned to negotiate the earth in 3D, humans have also found ways of reproducing the heat and force of igneous processes in order to transform rocky matter. In this way, we effectively function as a hinge or articulation between the life-sustaining envelope of the outer earth and the unliveable intensities of the inner earth. How have these interactions shaped who we have become, we ask, and what might we yet do with the materials and forces of the inner earth?

Dr. James C. Weaver

High-Resolution Multi-Material Additive Manufacturing: 3D Fabrication of Biologically Inspired Structures

Nature produces a remarkable diversity of intricately architectured mineralized composites that in many instances far exceed the performance of their modern engineering analogues. Despite significant investigations into structure-function relationships in these complex biological materials, in many instances, there is a lack of critical information regarding the specific functional roles of many components of these structural hierarchies. Here we introduce the technique of multi-material additive manufacturing, which we employ as a research tool to unravel the functional complexities of a wide range of biological materials including laminated composites, photonic architectures, and low-drag surface coatings.

NIGEL CLARK is a Professor of Human Geography at the Lancaster Environment Centre, Lancaster University, UK. He is the author of »Inhuman Nature: Sociable Life on a Dynamic Planet« (2011), co-author with Bronislaw Szerszynski of »Planetary Social Thought: The Anthropocene Challenge to the Social Sciences« (2021), and co-editor with Kathryn Yusoff of a special issue of »Theory, Culture & Society« on »Geosocial Formations and the Anthropocene« (2017).

JAMES WEAVER received his bachelor's degree in Aquatic Biology and PhD in Marine Science from the University of California, Santa Barbara, and went on to pursue postdoctoral studies in Molecular Biology, Chemical Engineering, Physics, and Earth History. Working at the interface between Zoology, Materials Science, Biomedical Engineering, and multi-material additive manufacturing, his main research interests focus on investigating structure-function relationships in hierarchically ordered biological composites and the advanced fabrication of their synthetic analogs. He has played critical roles in the development of new model systems for the study of a wide range of biomineralization processes and is an internationally recognized and award-winning scanning electron microscopist.

KAROLA DIERICHS holds the Cluster Professorship »Material and Code« at the Cluster »Matters of Activity«. Previously she has been a Research Associate at the Institute for Computational Design and Construction (ICD) within the Cluster of Excellence »Integrative Computational Design and Construction for Architecture« (IntCDC). She was conferred a doctoral degree with distinction from the University of Stuttgart. At the ICD she has conducted research on »Granular Architectures«, where she has developed designed granular materials in architecture. She has been engaged in transdisciplinary research collaborating nationally and internationally, among others with the Institute for Multiscale Simulation (MSS) at the Friedrich-Alexander-Universität Erlangen-Nürnberg, the Jaeger Lab at the University of Chicago and the Behringer Lab at Duke University. Her research has been published and exhibited internationally and has won several awards.

LÉA PERRAUDIN is a Media Theorist and speculative material scholar and works as postdoctoral Research Associate at the Cluster of Excellence »Matters of Activity«. Léa currently works on a habilitation project, bringing forth a media theory of phase transitions by investigating the ties of material and metaphor in contemporary technocapitalist media environments through transience, dispersal, abundance and solidification. Furthermore, Léa co-leads the experimental laboratory »CollActive Materials«, a three-year-project that intends to gather multiple publics to jointly tackle possible material futures through the method of speculative design.

Matter Across Scales

Moderation: Clemens Winkler
Discussion: Michaela Büsse

Prof. Jeff Diamanti

Rare Earth & Tender Violence in Greenland

This talk draws from recent fieldwork conducted with Amanda Boetzkes in the south of Greenland, at the base of Kuannersuit—a mountain shaped by the cryosphere and currently sought after by international mining firms hungry for its unique geology. Kuannersuit is one of the largest geological deposits of rare earth elements on the planet. It is also vibrating with uranium. Through the concepts of geofetishism and tender violence, we think with the extractive compulsions of the late carbon imaginary and ask how Greenlanders have been able to thwart colonial demand for its uranium in the postwar years, and now its rare earths by the international tech industry, concluding with a question about the territories too hastily subsumed into the self-image of post-oil capitalism.

Prof. Cymene Howe

Elemental Matters, Ethnographic Exposures

A discussion centering the material forms of ice and water to explore the potential of ethnography to craft the co-temporaneousness of human and nonhuman encounters with the elements. Through affective encounters with nonliving matter (yet with vital implications) and through physical connectivities (revealed in elemental systems), we consider latencies, viscosities and memory in the context of both watery overflow and cryospheric diminishment. In an experiment with how the elements might ethnographically represent themselves, we are invited toward conceptual spaces that might grow our collective, imaginative and possible futures.

JEFF DIAMANTI is an Assistant Professor of Environmental Humanities at the University of Amsterdam. He is the author of »Climate and Capital in the Age of Petroleum« (Bloomsbury 2021) as well as a number of articles and book collections on environmental theory and materialist critique. He is also Co-Director of the FieldARTS residency in Amsterdam, NL.

CYMENE HOWE is a Professor of Anthropology at Rice University. She is the author of »Intimate Activism« (Duke 2013) and »Ecologics: Wind and Power in the Anthropocene« (Duke 2019) and co-editor of »The Johns Hopkins Guide to Critical and Cultural Theory and Anthropocene Unseen: A Lexicon« (Punctum 2020). Her research focuses on climatological precarity and her work has been funded by the U.S. National Science Foundation, the Fulbright Commission and the Andrew W. Mellon Foundation. She has also been awarded the Berlin Prize for transatlantic dialogue in the arts, humanities, and public policy from the American Academy in Berlin.

MICHAELA BÜSSE is a Filmmaker and Researcher working across environmental anthropology, feminist science and technology studies and design. She is interested in the interplay of material practices, technologies, and geological processes and the way they (re)-configure environments. Her dissertation project analyses land reclamation projects in Southeast Asia and the Netherlands and based on sand's granular physics develops a performative reading of design. Michaela currently works as Research Associate at the Institute of Cultural History and Theory at Humboldt-Universität zu Berlin and Associated Investigator at »Matters of Activity«.

CLEMENS WINKLER is a Design Researcher at »Matters of Activity«, whose work relates environmental concerns and social, scientific and technological development. His current projects explore epistemic foundations of atmospheric control, especially on experiencing, notating, archiving and speculating in experimental exhibition formats with his research group »Object Space Agency«. In his current position as a Guest Professor at the University of Performing Arts Ernst Busch, in the MA studio »Spiel und Objekt«, he is setting up a playful framework for negotiations on current societal concerns, energy and pollution governance, postfossil futures, and digital media use on the theater stage.

Future Materials

Moderation: Martin Müller
Discussion: Charlett Wenig

Admir Masic, PhD

On the Multi-functional Future of Concrete

Concrete is the most widely used construction material in the world, and because of its carbon- and energy-intensive production methods, is responsible for 8% of global CO_2 emissions. For this reason, we need to entirely rethink concrete's future and develop new methods to reduce its carbon footprint. In this talk, we will discuss recent innovations in the production of »multifunctional concrete«, ranging from new formulations that act as carbon sinks, to Roman-inspired self-healing concretes, and electrically-conductive cements. These science-enabled developments all aim to make this multifunctional material part of the solution for the sustainable development of our built environment in an ever-changing world.

ADMIR MASIC is an Associate Professor of Civil & Environmental Engineering at MIT. His lab investigates nano-chemo-mechanical and mineralization processes in a wide range of anthropogenic and biological materials. With examples spanning from Roman concretes to modern Portland cement, from nacre to kidney stones, and from ancient pigments to the Dead Sea scrolls, the ultimate goal of Masic's lab is to translate the fundamental knowledge gained from investigating these complex material systems to solve fundamental engineering challenges related to construction, energy, and the environment.

Prof. Dr.-Ing. Vera Meyer

Fungal Concepts of Time, Space and Vastness

Fungi span multiple scales of space and time and transform organic matter through continuous deconstruction and reconstruction. As micro- and macroorganims, they have been cooperating across species boundaries for millions of years and enabled the first primordial plants to colonize land millions of years ago. Fungi shape most ecosystems and without them, life on earth seems inconceivable. In this talk, Vera will highlight some of their organizational levels, their importance for ecosystem functioning and what fungi can teach us on how to survive under planetarily limited resources.

VERA MEYER, a Professor of Microbiology at Technische Universität Berlin researches, and genetically engineers fungal cell factories for the production of medicines, platform chemicals, enzymes and biomaterials. Her inter- and transdisciplinary research projects combine Natural and Engineering Sciences with Art, Design and Architecture and create bio-based scenarios for possible living environments of the future. Vera Meyer is also active as a Visual Artist under the pseudonym V. meer and uses the means of art to make society more aware of the potential of fungi for a sustainable future.

CHARLETT WENIG is an interdisciplinary Materials and Product Designer. In the research group »Adaptive Fibrous Materials« at the Cluster of Excellence »Matters of Activity« at Humboldt-Universtität zu Berlin, she investigates possible fields of application, designs different scenarios for bark use considering her research results on structure, properties and functions. Charlett Wenig completed her bachelor's degree in Industrial Design at the University of Applied Sciences Magdeburg-Stendal (2008–2012) and her master's degree in Integrated Design at the University of the Arts in Bremen (2012–2016). She is currently pursuing her doctorate in Materials Science at the Technische Universität Berlin.

MARTIN MÜLLER researches at the intersection of Cultural History and Theory, Media Studies, History of Knowledge and Science, and Design Theory. He is a postdoctoral Research Associate in the Cluster projects »Symbolic Material« and »Material Form Function«. Since 2015 he has been teaching at the Department of Cultural History and Theory at Humboldt-Universität zu Berlin. Martin is the co-leader of the experimental laboratory for science communication and speculative design »CollActive Materials«. Recently published: »The Will to Engineer. Synthetic Biology and the Escalation of Zoëpolitics«, in: P. Ribault (Ed.): Design, Gestaltung, Formatività, 2022.

Michaela Büsse (2022)

White Elephant

28 minutes, 4K

In 2013, Malaysian port city Malacca was declared a node in China's Maritime Silk Road, a sea-based infrastructure project meant to connect China with Southeast Asia, Europe and Africa. Since then, numerous land reclamation and urbanization projects set out to transform Malacca's coastline in expectation of increasing marine traffic and tourism. However, these expectations would never materialize. Soon after development in Malacca had started, the Chinese government identified a more promising trade connection and developers abandoned their half-finished construction sites. The expression »white elephant« is a contemporary euphemism for costly building projects that fail to deliver on their promises. In Southeast Asia, owning a white elephant used to signify power and prosperity. The animal was and still is considered sacred, validating its owner's high social status while burdening them with high maintenance costs. The two-channel video installation explores the relationship between architectural models, promotional digital renders, and the actual sites. Malacca's deserted coastline stands in for the disjunction between future promises, their material premises, and repercussions. Amidst the ruins, the silty plots of land start to form a life of their own.

Program

from 10:00 am
Welcome and Moderation
Claudia Mareis

10:15 am–11:30 am
Panel 1: Wastelands

11.30 am–11.50 am
Coffee Break

11:50 am–1:30 pm
Panel 2: Earthly Matter

1.30 pm–2.30 pm
Lunch Break

2:30 pm–4:10 pm
Panel 3: Matter Across Scales

4.10 pm–4.30 pm
Coffee Break

4:30 pm–6:10 pm
Panel 4: Future Materials

From 6:10 pm
Wrap Up
Wolfgang Schäffner, Peter Fratzl and Horst Bredekamp

7.00 pm
Premiere of »White Elephant«

Matters of Activity
Image Space Material