

MATTER(S) matter(s): Bridging Research in the Arts and Sciences

The world today is increasingly determined, physically and mentally, by the rapid development and expansion of the techno-sciences. It is also well established that knowledge derived from scientific study is not “pure”; it is deeply entangled with its technological tools and sociopolitical contexts. In response to the deceptively seamless influence of the techno-sciences, this exhibition presents artists who privilege experimental, hands-on work with media, materials, and matter—the tools and methodologies of the “lab”—to scrutinize the different forces at play and ask new, radical questions about how the world works and our place therein. The notion of the laboratory has now extended beyond its container to encompass the entire planet. The featured artists appropriate techno-scientific methods to generate awareness regarding the invisibility of the microscopic and the incomprehensibility of the macroscopic. They also pay special attention to nonhuman actors and forces beyond our control.

While the specific choice of their matter matters, thematically speaking, the artists’ matters matter as well. They stage the ambiguity of a “greener” world with energy harvested from human bodily waste (Tagny Duff); investigate CO2 sequestration techniques, superfood, and toxic algae blooms (HeHe); physically engage in trans-species relationships (Art Orienté Objet); hook up ants with technology (Kuai Shen); develop alternative bodily (Stelarc) and non-gravitational (Zbigniew Oksiuta) architectures; explore molecular olfactory communication (Sissel Tolaas); and materialize the poetics of quantum physics (Evelina Domnitch & Dmitry Gelfand). While in the sciences, the focus has for a long time shifted from visibility (what we can see) to measurability (what we can record), the role of art, here, becomes to question the particular materials and technical media that shape our reality and the imaginary alike.

All the artists in this exhibition were invited through Michigan State University’s BRIDGE Residency and Lecture Program, which aims to create a platform for intermedia art that goes beyond the creation of forms and narratives, and engages in alternative forms—equally poetic and political—to produce knowledge. The exhibition thus reveals an “epistemological turn” in the arts and sciences—a focus on how knowledge is produced, and how that process of production inflects meaning and interpretation. The chosen artists have interacted with faculty members and students in different fields across the university’s many colleges. These partnerships involved hands-on learning experiences and use of the university’s many technical fabrication facilities.

MATTER(S) matter(s): Bridging Research in the Arts and Sciences is co-curated by Steven L. Bridges, Associate Curator, and Jens Hauser, Guest Curator and MSU Distinguished Affiliated Faculty. Support for this exhibition is provided by the MSU College of Arts and Letters; MSU BRIDGE Artist-in-Residency Program, directed by Adam Brown, Associate Professor; Science Gallery Lab Detroit; Goethe-Institut Chicago; and the Eli and Edythe Broad endowed exhibitions fund.

ECOLOGIES OF (UN)NATURAL FORCES

Artists in this section address how the human species explores and exploits natural resources, impacting the Earth's fragile equilibrium. Water, air and energy are their matters of concern. They call for an eco-centric view in current debates surrounding the Anthropocene—the concept of a geological era associated with significant human impact on the Earth's ecosystems. Scientists agree that human activity is exerting an ever greater influence on the planet's health, and that this change is accelerating, with potentially devastating outcomes. Several artists engage with the notion of "green" energies and practices. While often touted as a symbol of environmental sustainability, the color green can have negative connotations as well, for instance in the case of toxic algae blooms. These artists confront climate change, pollution, waste management, resource protection, the importance of interspecies cohabitation, and how humankind tends to "naturalize" what human action has caused.

Tagny Duff

b. 1971

Wastelands

2016-present

Biogas digestate in glass biospheres, bioplastic sculptures, and photograph

Courtesy the artist

Wastelands is a multifaceted, ongoing project by Tagny Duff exploring biotechnology and engineering practices that manipulate microbial ecosystems to produce alternative "green" energy. The project also addresses serious issues arising from climate change, fossil fuel extraction, and other environmental concerns that threaten the future of human society. *Wastelands* speculates on an alternative future, wherein biogas is generated by remediating bacteria, viruses, and excremental waste. Produced in collaboration with Assistant Professor Dana Kirk at the Anaerobic Digestion Research and Education Center at MSU, the works are functioning bioreactor prototypes, as well as aesthetic sculptural objects and photographic documentation.

Tagny Duff

b. 1971

in collaboration with WhiteFeather Hunter

Time Traveler and Cosmos

2018

Bioplastic sculptures

Courtesy the artist

Time Traveler and *Cosmos* are wearable bags modeled after leather and stone artifacts from the Paleolithic Stone Age, but made from bioplastic (derived from living bacteria). These wearables propose alternative relationships with bacteria as both agents of change through deep time, and resources for the development of living materials without fossil fuels.

Tagny Duff acknowledges the work of WhiteFeather Hunter and Courtney Books in independently conducting the research, development, and protocol for the bioplastic material, which remains their sole intellectual property.

Tagny Duff

b. 1971

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2018

Color photograph

Courtesy the artist

This photograph accompanies the two sculptures on display by Tagny Duff, imagining their future use. The artist announces: "It is the year 2518 AD. Human society has survived the end of the fossil fuel era and humans have embraced a return to microbial-fueled energy power developed in early human history (500 BC-2100 AD)." While brushing up against the genre of science fiction, this speculative future may not actually be so far away, and reminds us that many scientific fictions of the past are now commonplace.

The artist would like to thank Eric Julien, Maya Julien-Benard, Zoe Julien-Benard, Anouk Plouffe, and Bianca Flores-Julien for their roles in the making of this work.

HeHe

(Helen Evans & Heiko Hansen)

b. 1972; b. 1970

Prise en charge (Service included)

2011

Electrical outlet, electronics, and vapor

Courtesy the artists

Part of a series titled *Domestic Catastrophes*, this work is a low-tech experiment and electromechanical hack that reconfigures an ordinary appliance. On first encounter, the outlet appears to be inert. Periodically, however, it emits a foggy haze, signaling an unknown danger. Liberated from its dull and servile life, the object appears to spew out the emissions that were involved in its production. The *Domestic Catastrophes* address "human-made clouds" and our emissions culture from a tangible, household viewpoint. What matters to the artists is the very physicality of air, vapor, particles, and pollution, whose materiality is a very real matter of concern.

HeHe

(Helen Evans & Heiko Hansen)

b. 1972; b. 1970

Toy Emissions (My Friends All Drive Porsches)

2007

Digital video (color, sound), 3:08 min.

Courtesy the artists

This video, produced by the artists as part of a residency at Eyebeam Art+ Technology Center in New York, documents a guerrilla action: a modified remote-controlled toy car unleashed on the city streets, emitting colorful plumes of smoke as it zips around, dodging traffic and pedestrians. It visualizes the volume of emissions given off by a children's toy-a model of a car type known for excessive fuel consumption-and confronts our inclination to ignore or disregard what we can't (and don't want to) see: the volumes of pollution we produce on a daily basis.

HeHe

(Helen Evans & Heiko Hansen)

b. 1972; b. 1970

Toy Emissions (My Friends All Drive Porsches)

2007

Toy car and faux plumage

Courtesy the artists

HeHe

(Helen Evans & Heiko Hansen)

b. 1972; b. 1970

Green Desert: Lake Erie

2018

Mixed-media installation

Courtesy the artists

Green Desert: Lake Erie, developed by HeHe in collaboration with Associate Professor Yan "Susie" Liu of MSU's Department of Biosystems and Agricultural Engineering, re-creates satellite images of recent algae blooms in Lake Erie and Lake St. Clair using fine colored plastic particles. The intent is to complicate the notion of "green" as a marker for clean energy, environmentally sound practices, healthy and abundant food sources, and use in experimental CO2 sequestration setups. Expansive green algae blooms have plagued the Great Lakes, and other regions of the world, as a result of intensive industrial agriculture and over-fertilization, and can produce poisonous conditions that are harmful to plant and animal life.

HeHe

(Helen Evans & Heiko Hansen)

b. 1972; b. 1970

Green Desert: Soylent Green

2018

Petri dishes with algae

Courtesy the artists

This sculptural work presents the landscape of Lake Erie, made of harvested and cultivated green algae in Petri dishes, playing with the dual connotations of algae as both faddish superfood and pollutant. It questions the symbolic value of "greenness;" and calls for greater eco-systemic and material scrutiny when considering environmental sustainability.

The title refers to the apocalyptic 1973 science fiction thriller *Soylent Green*, in which a protein-rich food source supposedly produced from plankton is actually the product of necro-political industrial processes where humans are both the perpetrators of environmental crime and its victims.

Evelina Domnitch & Dmitry Gelfand

b. 1972; b. 1974

Hydrogeny

2010

Mixed-media installation

Courtesy the artists

Evelina Domnitch and Dmitry Gelfand create sensory immersion environments that merge physics, chemistry, computer science, and philosophy. They are particularly interested in making rarely seen phenomena and ephemeral processes visible. *Hydrogeny* utilizes the "mother of all matter;" hydrogen, which feeds the stars, but also is present in the molecules of all biological creatures. When bonded with oxygen, hydrogen takes the form of water. Here, tiny electrical impulses split water into hydrogen and oxygen gas, resulting in delicate, translucent bubble clouds that slowly rise. A white laser scans and illuminates their trajectories. A shimmering world of color and light is created when each quivering bubble becomes a prism that disperses the white light into a spectrum of colors.

HUMAN PROSTHESES AND NONHUMAN OTHERNESS

Many projects in this exhibition question how technical prostheses may extend human capacities, but also numb our greater sensibilities. As we add ever more communication devices to our everyday lives, are we dulling other senses, such as smell and taste? Featured in this gallery are artworks that involve prosthetic changes to human anatomy, and that affect senses other than sight and hearing. Many take the unique capacities of other species as models or inspirations, or imagine more sustainable forms of architecture using biodegradable materials. By these means, they question anthropocentric (human-centric) views of the world, and point to the fact that life is very much predicated on the coexistence of many organisms in complex relational systems. These works point to ethical quandaries, disturb our comfort zone, and push the boundaries of what the broader society is willing to imagine and accept.

Zbigniew Oksiuta

b. 1951

Spatium Gelatum

2018

Gelatin, water, and hydrogen peroxide

Courtesy the artist

Zbigniew Oksiuta is an artist, architect, and researcher whose work combines architecture, biology, physics, and genetic engineering. *Spatium Gelatum* ("congealed space") is made from biological polymers such as gelatin and agar. Oksiuta calls the result "liquid

architecture"-spatial shapes formed from water that are organic, even edible. Speculating on the future of architecture and designed space, these structures could dynamically change shape to accommodate the changing needs of the occupant, as well as provide nourishment or other forms of life support.

The artist would like to thank Wolf-Peter Walter for his guidance and oversight of the fabrication of this work. Production was made possible by the Science Gallery Lab Detroit, and was undertaken in collaboration with Cass Technical High School in Detroit.

Zbigniew Oksiuta

b. 1951

Mesogloea

2003

Video (color, sound), 4:17 min.

Courtesy the artist

Zbigniew Oksiuta

b. 1951

Architectural objects floating in the avocado oil lake, model

2018

Gelatin, water, and avocado oil

Courtesy the artist

Art Oriente Objet

(Marion Laval-Jeantet & Benoit Mangin)

collaboration since 1991

May the Horse Live in Me

2011

Mixed-media installation

Courtesy the artists

The duo Art Oriente Objet (Marion Laval-Jeantet and Benoit Mangin) blends radical performance, installation, and interspecies interaction to challenge anthropocentric perspectives. *May the Horse Live in Me* is an extreme medical self-experiment performing blood brotherhood across species boundaries. Laval-Jeantet is injected with immunoglobulins (antibodies) extracted from horse blood, which bypass her human immune system's defensive mechanisms so that her body progressively acclimates to them. Her hybrid blood is then extracted and freeze-dried, followed by a communication ritual with the horse at eye level. The performance touches on the myth of the centaur, the human-horse hybrid, but reverses its implicit hierarchy by putting the horse into the human, instead of the rider dominating the animal.

Art Oriente Objet

(Marion Laval-Jeantet & Benoit Mangin)

collaboration since 1991

Artists' Skin Culture

1996

Artists' skin cultures, pig skin, tattoo ink, formaldehyde, and glass jar
Courtesy the artists

To make this work, the artists' epidermal cells were co-cultured, and the thin tissue-engineered layer was grafted onto pig dermis. The hybrid skin samples were then tattooed with motifs of laboratory model organisms and endangered species. These trans-species totems are now available for purchase by collectors, who are encouraged to make them part of their own living bodies through skin grafting. According to the artists, the work is "the projection of a hybrid world where interspecies transplants would be common currency, and the distinctions between different living species would be blurred until they finally disappeared altogether." It is a radical gesture – both a biotechnological experiment and a call for greater awareness around the need for (literally) embodied engagement with biodiversity.

Kuai Shen

b.1978

Oh!m1gas: biomimetic stridulation environment

2012

Mixed-media installation

Courtesy the artist

Kuai Shen explores the behaviors and inner workings of ant colonies as metaphors for human society. He is particularly interested in ant bioacoustics, and how ants are able to mimic responses to certain human technologies. *Oh!m1gas* translates an ant colony's movement and sound production-known as stridulation-into an audiovisual environment. The events produced by the ant colony are video and audio surveilled, while a pair of record turntables produce scratching sounds similar to the stridulations of the ants. Both phenomena are forms of communication, here conflated into a single interspecies cultural production.

Stelarc

b. 1946

Extra Ear: Ear on Arm

2006, ongoing since 1997

Mixed-media installation

Courtesy the artist and Scott Livesey Galleries, Melbourne

Stelarc is a performance artist who explores alternate anatomical architectures. The bronze and aluminum casts and video from his long-term project *Ear on Arm* refer to the process of surgically constructing an ear on his arm. The additional ear will eventually have a built-in microphone and Bluetooth transmitter, and will effectively be an internet organ for the body, mirroring the skin's dual reception and transmission functions. As technology proliferates and microminiaturizes, it becomes increasingly biocompatible. The prosthesis, in the artist's conception, is not a sign of lack, but rather a symptom of excess. The video documents the second surgery, which involves the insertion of the

biocompatible polymer ear scaffold, suctioning the skin, and testing the implanted microphone.

Zbigniew Oksiuta

b. 1951

Transgenic Habitat: Roots make nodes–Plants in hormones' maze

2018

Mixed-media installation

Courtesy the artist

Produced in conjunction with Professor Brad Day and postdoctoral researcher Miranda Haus of MSU's Department of Plant Biology, this work, part of a larger project titled *Transgenic Habitat*, involves mechanical, environmental, and genetic controls that allow for the creation of new plant forms. The project investigates how genetic anomalies and plant mutations result from external stimuli such as gravitational forces, direction of light, chemical hormones, and cell diversity. With the spherical habitat, gallery staff rotate the object according to a predetermined choreography, causing the plant tissues to take shapes that don't exist in nature. These might include Cartesian shapes such as spheres or cubes, or even cylinders and orthogonal beams, which are so far only known to result from human mathematical operations.

Scott Bankroff and Walter Peebles also deserve recognition for their labor in fabricating elements of this installation.

Sissel Tolaas

b. 1963

in collaboration with Natasha T. Miller

SmellScape Detroit 18/2018

2018

Mixed-media installation

Courtesy the artist

Smell is more closely linked with memory than any other sense, and smell researcher Sissel Tolaas considers specific smells unique sources of information that should be protected and preserved. *SmellScape Detroit 18/2018* consists of what the artist refers to as "listed smells" (a play on "listed sites," or buildings designated as historic or protected) replicating real smell sources and abstract smell codes from the neighborhood surrounding Michigan Central Station, in southwest Detroit. To create it, Tolaas investigated the area's past and present, from people's behaviors to local traditions and built spaces. This project aims to prevent the loss of constituted memory-to regenerate and preserve it in a new, more holistic way.

This project was made possible with the support of IFF Inc.

Please feel free to handle each artifact to access its smell.