wunder | kammer 1

fluid form

tomas bohr

esbjerg art museum

This booklet introduces the first exhibition of Esbjerg Art Museum's three-year wunderkammer project, *Wunderkammer I – fluid form*, curated by Christiane Finsen and Inge Merete Kjeldgaard in close cooperation with professor of physics at The Technical University of Denmark Tomas Bohr and his colleagues.

The booklet commences with an introduction to both the exhibition concept and the scientific area which constitutes the starting point of this first wunderkammer: fluid dynamics.

For this project, Tomas Bohr and his team have created five experimental setups showing important aspects of free-surface flows, based on his own laboratory experiments.

These scientific experiments determine the organization of the exhibition and they are described by Bohr one by one. In each case his text is accompanied by a presentation of some of the art works that the museum's curators have chosen for the experiment.

The booklet finishes off with a list of works.

Upon the conclusion of the wunderkammer exhibition series, Esbjerg Art Museum will be publishing an illustrated book that brings together the entire project and contains exhibition analyses as well as results from the research project on audience experiences.

wunderkammer —— *an introduction*

Christiane Finsen, curator and Inge Merete Kjeldgaard, director at Esbjerg Art Museum

Fluid form is the first exhibition in a series of three wunderkammer exhibitions for which Esbjerg Art Museum, in 2017, received *Vision – the Exhibition Award*. With this award, The Bikuben Foundation honours a visionary idea capable of 'creating the space for a rethinking of art-centred exhibition formats'; formats which the award lets the winning institution realize.

Visual art is often presented from the point of view of the implicit understanding of art by art professionals, and as such as having no relation to the realm of our more general experiences. Thus, it is a widespread tendency that art is both presented and experienced as something that is external to most other knowledge areas as well as to life in general. The most extreme example of this aspect is modernism's so called 'white cube', in which the works, detached from all context, are displayed on a bare, white wall, so that the spectator – at some distance – may contemplate the (master-) pieces chosen by the experts.

The diametrical opposite of the white cube is the wunderkammer which, in a historical light, is the forerunner of our present-day museums. Back in the 1500s, the wunderkammer constituted an encyclopedic collection of items of nature as well as of craft, scientific instruments, antiques, and art, all of which had not yet been categorized in accordance with those profession and subject borders that were defined later. True to the thinking of the Renaissance, the wunderkammer was meant to function as a mini universe, a microcosm that reflected all the world surrounding us, i.e., the macrocosm.

We have no intentions of neither miming the content level of this archetypical wunderkammer, nor do we want to use it as a scenographic setting at a more superficial level. Instead we wish to rethink the wunderkammer as a phenomenon and insert it in a contemporary context. Hence, our novel space of wonderment is inspired by especially three features, characteristic of the historical wunderkammer: a fundamental curiosity about the phenomena of the world as well as the connections between them; a chaotic presentation format which may contribute to our modern day exhibition's elements of variation, astonishment, and unpredictability; and finally, an encyclopedic dimension that breaks down the borders between the definitions of long-established subjects and disciplines, thereby uniting diverse world views.

In our three present-day wunderkammers, we thus intend to unite art with research from various scientific areas with which we are all familiar, and feel comfortable with, from our daily lives. Our outset is the viewpoints of the physicist, the artist, and the biologist, respectively. *Wunderkammer I* is arranged in cooperation with professor of physics at The Technical University of Denmark, Tomas Bohr, *Wunderkammer II* in cooperation with the American artist Mark Dion, and *Wunderkammer III* is jointly organized with Professor Eske

Willerslev and Associate Professor Martin Sikora from The Natural History Museum of Denmark and The Centre for Geogenetics at The University of Copenhagen. By involving these outstanding scientists from areas radically different from the art sciences, it is our ambition to connect the art experience with the surrounding world at a primary level, so that we, through meeting with art, are brought closer to the world and get an opportunity to reflect on the basic elements of our existence. This is evident in Mark Dion's total installation, in which wunderkammer, art work, and objects from our everyday lives merge. And, turning to biology and physics, we incorporate areas that in a more direct way deal with the most basic elements of human existence. While biology focuses on exploring life itself and the life functions, physics is preoccupied with matter and energy in the nature that surrounds us. At the same time, we are convinced that it is here, in a domain of eternal wonderment and search for connections and meaningfulness, that art and natural sciences meet and complement each other. Both seek to expand our views of the world, and they approach the mysteries of existence from different angles.

tomas bohr and *fluid form* ——— We have invited the physicist Tomas Bohr to create the first wunderkammer in cooperation with us. Through his entire career, Tomas Bohr has been working with chaos theory and fluid dynamics, both of which are areas within physics that we see reflected, not only in visual art, but also in everyday life. Each of Bohr's experiment setups use as their starting point everyday phenomena like a drop of water hitting the surface, the jet of water from the tap into the sink, or liquid being stirred in a pot. The experiments make visible how beautiful, surprising, and complex the structures of surfaces of liquids can be, even under very simple conditions, and how much they resemble phenomena in the atmosphere, in the sea, in space. Such phenomena that we think we know, but at closer inspection challenge our habitual notions and understandings.

With his team at The Technical University, Anders Andersen, Alexis Duchesne, and Erik Hansen, Tomas Bohr has chosen to recreate and present his experiments retrospectively, through five comprehensive experiment set-ups that will determine the structural and at the same time labyrinthian design of this, the first, Wunderkammer exhibition. In all three exhibitions, the exhibition architecture will be realized through the underlying ideas of the individual project, ideas that are integrated in the fundamental layout of the exhibition rooms. With the diverse and labyrinthian structure that we construct around Bohr's experiments we aim to create a level of variation which is indefinite from the outset, hereby offering an inciting and immersive voyage of exploration that may appeal to both our senses and our constant search for new insights.

The scene is set as early as in the entrance room. Moving from a conceptual version of the studiolo, i.e., the study of the renaissance nobleman, you go through a dark passage in which you are, in a manner of speaking, showered by the intense water sounds created by the artist Maj-Britt Boa, before you reach a small antechamber filled with works of art that all seem to be in the making – in a process of fluid change. From here you will, at the end of a narrow corridor, see Bosch and Fjord's gigantic drop of blood that seems close to dropping from the ceiling. Nearby it is possible to follow Bohr's experiment with drop dynamics that unfolds both in his laboratory set-up and in its transmission onto the wall, picture-like, undergoing constant change, surrounded by art works that in various ways enhance the experience. Such experiences continue through the museum's special exhibition rooms in which Bohr's experiments cohere with specially selected works that, each in its own way, unfold the five different fluid themes of the exhibition.

By integrating Tomas Bohr's experimental set-ups into the exhibition space in this way, we wish to take art into an unexpected and different context which has traditionally been connected to the rather esoteric laboratory of the scientist. Together, the scientific installations in this museological context achieve an aesthetic dimension through which our view of them is gradually changed. In this way we intend to let a new space emerge in which established and traditional categories and divides between art and natural science, sensing and thinking, subjective experiences and scientific objectivity may be decomposed and cross-fertilize each other.

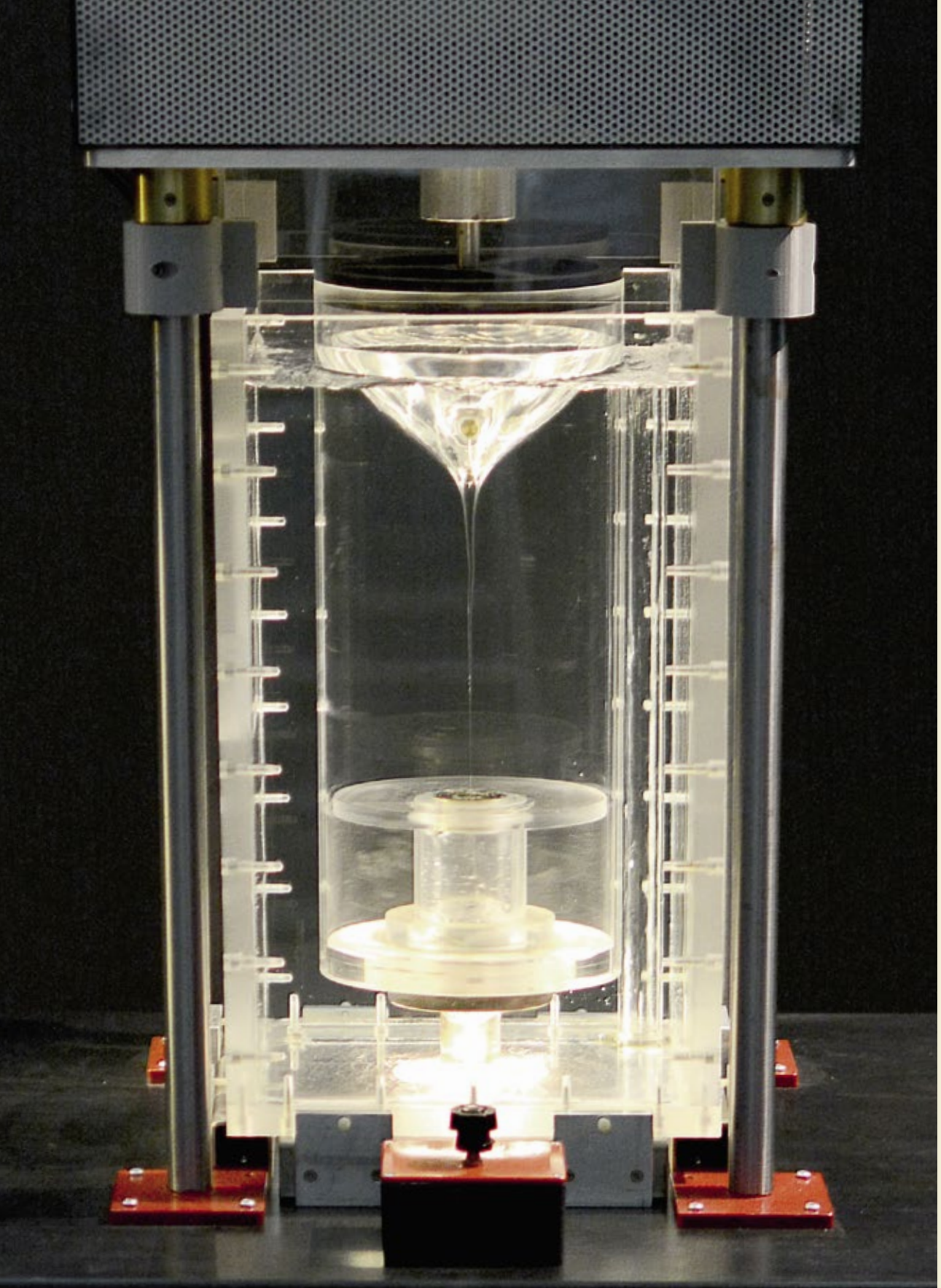
At the same time, the overarching ideas behind Bohr's fluid dynamics research are merged with the organizing principle of the exhibition. For in the same way that liquids may exist within well-defined limits and nevertheless behave unpredictably, a seemingly governable compilation of works and objects in an exhibition room can give rise to unforeseen reactions and associations if you are given the possibility to encounter the works as viewed from your own personal realm of experiences.

With this, the first wunderkammer exhibition, we hope to stir your imagination, awaken your thirst for knowledge, and open the door to that personal 'wonderment room' with which we are all born.

In 2017 we were extremely grateful and happy to receive the Vision Exhibition Award from The Bikuben Foundation. It is quite outstanding that a foundation so generously awards an idea which has not yet been realized. Therefore we would like to thank The Bikuben Foundation and its jury warmly for choosing to give to our exhibition idea such a distinguished recognition. Our most sincere thanks go to Tomas Bohr and his technical university team for a fantastic, inspiring, and stimulating cooperation. For us as art historians it has been particularly eye opening to focus on visual art from Bohr's hydrodynamic perspective. Our cooperation may well be described as an organic process during which we have constantly exchanged ideas and exercised mutual influence. This has meant that we on the one hand have discerned works we would never have seen otherwise, and on the other have found completely new aspect of works we thought we knew already.

Director and art historian Inge Merete Kjeldgaard ——— Inge Merete Kjeldgaard is the director of Esbjerg Art Museum. Here she has worked with the development of the exhibition as a medium through a variety of experimental exhibition projects, and she has initiated and contributed to a research program on audience experiences that is an integral part of the museum dissemination efforts. IMK has also initiated basic research projects situated in the matrix between natural sciences and visual art, and she has taken the initiative to a number of cross-aesthetic, cross-institutional and transdisciplinary development projects. IMK is the author of numerous articles on contemporary art and the research of Esbjerg Art Museum, published in anthologies and journals, and she is the editor of the museum's publications and its journal.

Curator and art historian Christiane Finsen ——— Christiane Finsen is a curator at Esbjerg Art Museum. Here she has curated numerous exhibitions, she has contributed to and edited a number of exhibition publications, and she has been deeply involved in the implementation of the results of the museum's practice-oriented research projects into subsequent exhibitions and dissemination initiatives. At the moment Christiane Finsen is working on a research project which rethinks the museum as a potential catalyst of the integration between art and reality.



the shape of flowing water

Tomas Bohr
Professor of Physics, The Technical University of Denmark

Some of the most fascinating features of motion in water and air are the ones you do not see. Both water and air are transparent, so in order to figure out the dynamics you must track specks of dust, clouds, or dye, whose motion you can see. When you work with hydrodynamics (motion of fluids/liquids), one of the challenges is therefore precisely to make the motion visible. In the 1600s Galilei, one of the pioneers of modern science, was famous for challenging his colleagues to "Make measurable all that is not yet so!" Today we might use "Make visible all that is not yet so!" – as a motto for a large part of modern science. Our eyes are acute tools which enable our brains to "understand" what is going on – something we appropriately refer to as "obtaining an overview". And this creates a fertile interface between science and visual art. Both depend on using our eyes.

The motion of liquids and gasses, often jointly called "fluids", can be very complex. Leonardo da Vinci recorded this with the sensitivity of an artist combined with the precision of a scientist, but it was not until the middle of the 1700's, around 70 years after Newton had described the general laws for the motion of bodies, that one found the appropriate equations – and yet another century before it was understood how the inner friction (viscosity) can be incorporated. These are called the "Navier-Stokes equations", and their solutions cannot in general be captured in simple formulae. For many years we have hosted summer schools in a series called "Complex motion in fluids". As an introduction to the students, I have often quoted the Austrian-American scientist Victor Weisskopf, who, in an essay, imagines that one gathered some clever theoretical physicists who had no knowledge of the states of matter – maybe because they came from another galaxy, or, perhaps, were just a bit absent-minded.... If they were told (or knew) about molecules and the forces between them, they would probably predict that those molecules, at high temperatures, would fly around randomly without noticing each other much and create what we call a *gas* (e.g., water vapor); perhaps also that they, at low temperatures, would get stuck in well-ordered, rigid crystal structures, where each molecule is fixed by the interaction from the others, what we call a *solid* (e.g., ice). However, they would probably never imagine that something like a *liquid* existed, where the molecules are tightly bound to each other, but still move so easily that the material can be deformed freely. In water the distance between the molecules is actually less than in ice, but they still move easily between each other! Seen in that perspective *all* motion in a liquid is complex. Not so strange that it has inspired artists from the earliest times.

When we see water flow in this exhibition it is primarily the surface we see.

A water surface is a kind of (enviably) self-healing skin, which exists where water and air meet. If we make a hole in a water surface, the water we push off immediately turns into drops, and the hole disappears through the creation of new surface. Surface tension describes how much energy it takes to create new surface, and it normally ensures that

the surface shape is even and rounded, so that the energy does not get too large. A flowing water surface is a bit like the tip of an iceberg: its shape is determined not only by the surface tension, but also by the entire invisible flow in the water beneath. When a wave breaks against a cliff, we are not so surprised to see that the water surface can become very complex and even disintegrate into sea spray. Our experiments are more moderate – often at a level, where we can make the surfaces completely stable, as if they were cut in glass. Even so, one can, with patience, see that the surfaces can show both abrupt edges, sharp corners and pointed tips – perhaps a bit strange for something as soft as water. And when we change the conditions a bit, an abrupt circular edge can become a many-sided polygon. Even when one pushes the flows to higher speeds and finds more disordered, perhaps disintegrated, surfaces, they can still retain a well-defined overall form – e.g., a rotating triangle – despite the chaotic flow.

Fluid flows play a large role in both nature and technology. Many resources are used to compute and predict weather, storms, ocean-currents, or the airflow around the blades of a wind turbine. Animals and plants are full of water, whose flows ensure the supply of vital substances such as oxygen and sugar. Fish and other organisms have to maneuver and survive in the ocean. So to understand all of this, one naturally needs to know the basic equations of fluid dynamics. The experiments we show at this exhibition are closely related to everyday phenomena such as water running out of a faucet or out of a bathtub. There are several reasons for that. First of all, these phenomena are sufficiently close to more violent large-scale natural phenomena such as tidal waves, tornados or galaxies to allow us to learn something significant from them. Secondly, they are active areas of research, where new phenomena are constantly discovered, and where no uniform agreement exists, even on the basic mechanisms. Thirdly, we simply find it "fascinating", perhaps a combination of "beautiful" and "surprising" – without being able to define it more precisely. They sharpen our mind about the phenomena surrounding us. And they teach us not to take anything for granted.

In one of his assignments in primary school, Niels Bohr was asked to write an essay on "The use of the natural forces in the home". His short reply was "In our home we do not use the natural forces". Of course, this was a provocation, perhaps derived from the fact that the "natural forces" determine our entire world and therefore do not particularly belong to the domestic sphere, and perhaps he was amused by the thought that each home could tune the "natural forces" as they wished. Anyway, the natural forces are present, even in our homes (at least in mine), and particularly the kitchen and the bathroom are good places to observe, in peace and quiet, the fascinating liquid flows they create – if only you notice them!

We have strived to make our experiments in a way so that the visitors can see all that happens without magical "black boxes", whose contents are unknown. When closed boxes do appear (even black ones), we have marked their contents (e.g., a pump or water). And we hope that the visitors will accept the invitation to press or turn knobs, where it is possible (and allowed), and thereby change important parameters such as rotation speed, drop size or liquid height, which change the outcome of the experiments. On the other hand, we do not provide detailed explanations. For those interested, some of our scientific papers will be available close to the experiments, but they are formulated in the usual scientific style using equations and assuming some prior knowledge of fluid dynamics. The details of these flows are actually rather complicated and not even fully understood. Of course they follow some quite simple rules (the Navier-Stokes equations), but still create rather complex structures that have a tendency to slip through our fingers when we try to pin them down. At times it is hard to avoid attributing human characteristics to the flows and

explain them by saying that the water "wants to" run this way or that. I have named that practice "Psychological fluid dynamics", something that we try not to resort to too much.

We are constantly bombarded by opinions and predictions based on mathematical models of the highly complex systems surrounding us: the economy, the weather – even the creation and future of the universe. In that context it might contribute to a healthy grain of skepticism that one can still be surprised by water streaming out of a faucet, and to an increased awareness of the richness of the "simple" natural phenomena on display right in front of our eyes.

When Inge Merete Kjeldgaard and Christiane Finsen asked whether I would collaborate on the present exhibition, I became very happy, but also a bit hesitant; it was immediately clear to me that this was not a task I could or even wished to accomplish alone. Throughout my career as a scientist, collaboration has played a central role for me as a source of energy, ideas, and joy. For this task, we have therefore been a closely knit *team* with different personalities and competences, choosing, planning and creating the experiments together. This team consists of Anders Andersen, Alexis Duchesne, Erik Hansen, and myself. Anders Andersen is my colleague at the DTU Physics and has, since he came to the department as a phd-student (except for his postdoc years at Cornell University in the US), been my steady collaborator in developing and understanding experiments in fluid dynamics. Alexis Duchesne, who has his phd from Paris, has spent two years as postdoc with us and accepted the challenge with enthusiasm – bringing his great knowledge of experimental fluid dynamics. When the exhibition opens, he has started his new job as professor in Lille, where he will surely be an inspiring researcher and teacher! Finally, Erik Hansen works in the workshop of DTU Physics. He is the one who has actually built the experiments, and, as if that was not enough, he has taken full part in developing them. Further, being an accomplished photographer in his spare time, he has contributed substantially to their visual appearance.

It has been a great pleasure to work with Inge Merete Kjeldgaard and Christiane Finsen on this project, and we owe them many thanks for taking the initiative and for believing in us and that our strange experiments could function in an artistic setting. Aside from our regular *team*, we have benefitted a lot from ideas and contributions from Magnus Paludan and Mette Høst. We also thank Barbara Bohr, who, with her videos, has tried to capture the essences of our experiments. In that context we would also like to thank Nikoline Løgstrup and Stephanie Stål Axelgård for valuable help. For the videos, we have had great benefit from our new high-speed videocamera, granted by the Carlsberg Foundation, for which we are very grateful. I am very thankful to Clive Ellegaard both for many years of collaboration at the Niels Bohr Institute, for creating the initial contacts to Esbjerg Art Museum and for letting me inherit some of our joint experiments, among them the hydraulic jump. Finally we would like to thank DTU Physics for supporting us throughout this unusual and challenging project.

Professor at DTU–Physics, Tomas Bohr ——— Tomas Bohr's research area is fluid dynamics, biophysics, chaos, turbulence and statistical mechanics. He combines theoretical work with simple model experiments on hydraulic jumps and other free-surface flows as well as sap-flows in trees. Together with associate professor Anders Andersen, he forms the research group "Complex Motion in Fluids" (for more details, see http://www.fysik.dtu.dk/complex). He is a member of the Royal Danish Academy of Sciences and Letters, and he has published around 100 papers in international journals as well as popular science papers and the book "Bevægelsens uberegnelige skønhed. Om kaos", ("The incalculable beauty of motion. On chaos") Gyldendal 1992. Tomas Bohr has earlier been associated with a project at Esbjerg Art Museum at the intersection between natural science and art: the exhibition "Interferens" ("Interference") in 2005.

drop dynamics

Experiment by Anders Andersen, Alexis Duchesne, Erik Hansen, and Tomas Bohr.

In the experiment we show the result of the collision between a falling drop and a water surface.

When one of the buttons is pressed, the camera will take a picture right after the drop has hit the water surface, and the picture is shown by projection. The different buttons give drops of different size, sometimes even several drops, giving different splash-shapes.

The video shows the entire collision process taken with a high-speed camera slowed down by around a factor of 40. Shortly after the collision a "crater" develops in the water surface, and simultaneously a "crown" is formed further away. When the crater collapses, a water jet is ejected upwards while disintegrating into drops. In the experiment the camera records the picture at the time of the formation of the raising water jet.

art surrounding ***drop dynamics*** ——— What is a drop, and what does it look like? How can something like a drop be interesting at all, and in what ways may we describe it? Such questions are fundamental for our selection of works for Tomas Bohr's drop dynamics experiment.

For a number of years, the American artist **Rose-Lynn Fisher** has been developing a series of works that raise questions about what a drop is. *The Topography of Tears,* she calls it. It is by no means new knowledge that tears induced by emotions are different from those that occur because of an irritated eye. However, such investigations based on natural sciences are not what drives Fisher. Being an artist she has posed new kind of questions, e.g. whether a tear of joy looks different from a tear of sorrow. Most of the tears for her investigations she delivered herself and put them under a microscope in order to photograph them, enlarged a hundred times. The result is a series of very different photos that, despite her use of a type of scientific tools, in no way resembles an exact science; therefore the series has no conclusion. On the contrary they are photos that, through an inherent kind of poetry, pose questions about image formation and our emotional register.

In the exhibition, Fisher's pictures, semi-scientific and poetic at the same time, are commented on both positively and negatively by the American pop artist **Roy Lichtenstein**'s work *Hopeless,* which is a depiction of a teardrop caused by a feeling of hopelessness, albeit in a cartoon version. Detached from its context, the artist has chosen this one segment from a cartoon strip, recreated it as art and through this process he has provided this mass cultural picture with an aura of originality that the cartoon in itself does not contain. The single picture thus invokes a kind of attention very different from that of the cartoon strip. This applies not least to the teardrop which is absolutely essential for the theme as well as the composition. The tear here assumes the drop shape which most people identify as real – a shape reiterated in many design icons such as Arne Jacobsen's chair *The Drop* and the drop-shaped caravan. However, if you examine Bohr's experiment closely you will discover that a drop does not look like that at all. It assumes many other shapes, sperical, elliptical, etc.

Even though **Bosch and Fjord**'s gigantic red drop of blood at first glance seems equally cartoon-like, in reality it is more complex. Nevertheless few people are likely to be in doubt about what they are looking at, even though the drop, thanks to its size alone, is capable of shifting our perception of what a drop is and can be. It reminds us of those oversize everyday items that the pop artist Claes Oldenburg created as sculptural works and by that awarded them with a special status – much like Bosch and Fjord's single drop of blood. But at the same time it is in the middle of a process; measuring 2m30 it seems dangerously close to losing its attachment to the ceiling and crash down right in front of us.

The drop is such an everyday phenomenon that we normally do not even notice it. However, faced with Bohr's experiment and the works of art surrounding it, our awareness is sharpened, and we may contemplate afresh a phenomenon that we normally would not consider to be of greater significance. You might also question which drop is the most real; is it Bohr's, Fisher's, Lichtenstein's, Bosch and Fjord's, or any one of the other (re)presentations we are surrounded with in this part of the exhibition.

Rose-Lynn Fisher
The Topography of Tears, 2018

Roy Lichtenstein
Hopeless, 1964

Bosch & Fjord
Colon, 2003

wunderkammer 1 — *fluid form*

the bathtub vortex

Experiment by Anders Andersen, Alexis Duchesne, Erik Hansen, and Tomas Bohr.

In the experiment, water flows from a cylindrical container out of a small hole in the bottom of the container. Above the hole a narrow air column forms, a “bathtub vortex”, like when the water runs out of a bathtub. The outlet is located in the center of a brass disc which is placed in a circular plexiglass plate. To maintain a constant water level in the container, the water is pumped back to the container by seeping slowly up between the plastic plate and the cylindrical sides of the container.

The experiment is an idealization of water that flows out of a bathtub and also inspired by the air currents of a tornado. To stabilize the flow, the cylindrical container is rotated slowly, whereby one can control the length of the air column. You can choose different speeds by turning the red button. It takes patience, because it takes a long time for the water to be “spun up” and for the bathtub vortex to “sniff out” the right position. In the stationary flow, the rotational speed in the center may be 1000 times greater than the cylinder. This is probably hard to believe, since it is very hard to see ...

The video shows the changing shapes of the bathtub vortex partly taken with high-speed video, so that what you see is slowed down by around a factor of 40. The video shows also (in real time) what happens when you drip in some color from above. The part that hits near the center forms a column that moves at full speed down through the outlet. The rest forms amazingly beautiful curtains that remain intact for very long – except if rotation is stopped. If one leads color in at the bottom one can see that it moves along the bottom of the plexiglass plate and then slowly spirals *up* along the vortex, around one centimeter from the center, despite the fact that the current right at the vortex is strongly downwards.

This experiment was the phd-project of Anders Andersen. The original design was by Anders Andersen, Tomas Bohr, Bjarne Stenum, Jens Juul Rasmussen, and Benny Lautrup and built by the workshop of DTU Physics in 1999.

art surrounding ***the bathtub vortex*** ——— We all know it, the bath tub swirl. When we pull the tub plug to let the water out, we see the swirl from above and from the inside of the tub, as the water whirls into the drain. Actually, we cannot see the entire whirl in this case – however, in Bohr's experiment that is possible; here we get an opportunity to study the whirl closely and see what a surprising number of shapes the whirl can assume, from a precise and thin, awl-like figure that is moving calmly, to the fiercest and wildest vortex. This phenomenon is quite common in both nature and in the universe. Once you have seen a photo of Hurricane Katrina, taken from space, you are not likely to forget the colossal spiral destructively headed for Louisiana; a bath tub swirl on a catastrophic macro level.

In Eske Kath's painting *Hurricane Party* we are taken close to this horrifying natural phenomenon. It is as if we are sucked into the whirl structure of the hurricane where we see easily recognizable fragments of brick houses and wooden boards whirling around in a dynamic spiral movement across the picture surface that seems close to bursting to let the hurricane out into our space. It is the stringent, almost cartoon-like painting style alone that, through the work's composition with its strict picture construction and the underlying grid pattern, for the moment maintains order in the otherwise destructive chaos of the motive.

Destruction is also very characteristic of the works of the American artist **Alexis Rockman**. In Bohr's experiment we see how the swirl acquires many shapes, and similarly, there is quite a variety of the ways in which artists interpret the phenomenon. Rockman's expressive and partly naturalistic painting *Multi-Waterspout* depicts a phenomenon similar to that in Kath's painting, but here, a series of whirling waterspouts move across the ocean surface in a dramatic and very picturesque scenery in which a dynamic diagonal composition leaves little space for the sea itself. On the contrary, most of the canvas is dedicated to a dark and threatening scene of doom, reinforced by the impression that the waterspouts seem to be drawing nearer and nearer.

Instead of the menace inherent in the vortex of a tornado, in **Olafur Eliasson's** gigantic work *Wirbelwerk*, permanently installed in the art museum Lenbachhaus in Munich. In this exhibition it is therefore represented by a small-scale model only. Constructed as a whirl consisting of metal pipes, mirrors, and coloured triangles, and lit from the inside, it casts shapes of coloured light and shadows onto the walls of the museum atrium. At the same time, the work is indicative of the natural phenomenon of 'whirl' itself, letting us contemplate the phenomenon in a new light through this grand installation with its overwhelming dimensions. Impressing us directly through our sensory apparatus, its spiral construction and the use of light give us an experience of a whirl in dynamic rotation, moving rhythmically with our own movements around it.

It is the beauty, too, that comes to mind when standing in front of the Norwegian artist **Tone Bjordam's** video work *Liquid Landscape*. At first hand, it may look like a physics experiment when Bjordam gently pours colour into a liquid to create swirling structures for us to see. However, she in no way imitates the work methods of the physicist. On the contrary, she creates poetic pictures in constant and quiet change of those simple materials: colour in water. A closer look reveals that the recording has been turned 180 degrees, or upside down, in order to enhance our perception of the swirls which are at once real and enigmatic. Therefore this is not just a swirl, but rather a fascinating and wondrous image which can make us experience the world anew.

And that is exactly what art can do. Arouse our wonderment. Make us observe something as apparently commonplace as a bath tub swirl and its significance, in nature and for us. Banal and complex at the same time. Wondrous.

Alexis Rockman
Multi-Waterspout, 2006

Olafur Eliasson
Wirbelwerk, 2012
811 × Ø 813 cm
Courtesy Städtische Galerie im Lenbachhaus und Kunstbau München

Tone Bjordam
Liquid Landscape, 2005

rotating polygons

Experiment by Anders Andersen, Alexis Duchesne, Erik Hansen, and Tomas Bohr.

In the experiment it is shown what happens when water is rotated, but prevented from rotating as a rigid body. Here it is the bottom plate in a cylindrical vessel, which is rotated, while the cylinder itself stands still – a bit like an idealized milk foamer. Rotating liquids have been studied frequently – after all we live on a rotating planet. Newton made a famous experiment, where he hung a bucket of water in a twisted rope. As he let go of the bucket it started rotating and after a while the water came to rest again, but this time with respect to the rotating bucket; and now he noticed that the water surface was no longer flat but curved upward at the rim like a paraboloid. From that Newton deduced that the rotating reference frame of the bucket was not an "inertial system", and that the simple form of the equations of motion that he had developed therefore did not suffice. Many years later Mach and Einstein asked the question of why one could not just as well say that *we* (the laboratory) were rotating with respect to the bucket, and from there came a whole new theory of gravitation!

When only the bottom of the "bucket" rotates, the situation is quite different: the water is "frustrated", because it cannot settle down in any reference frame. And strangely enough this gives rise to entirely different surface shapes, where the rotational symmetry is broken. By turning the knob one can choose a range of rotational velocities for the bottom and thereby create different surface shapes. One needs, however, to have patience, since it takes some time for the water to find the stationary shape. A camera takes a picture from the top of the cylinder every 5 seconds and projects it on the wall. The video shows recordings of an experiment with water and of the same kind as the one seen here in the exhibition. In that experiment the cylinder is 30 cm in diameter, and both the bottom and the cylinder itself can rotate independently. That experiment, which is in my lab, is also built by Erik Hansen.

It is impossible to make the bottom plate rotate in an absolutely horizontal way, and we were therefore, for a long time, afraid that the polygon shapes that we saw were created by the small wobbling of the plate. Laust Tophøj, phd-student with me at that time, then had the idea that we might see the same phenomena in a container that is standing still – when only we could find a liquid with such low friction that it would remain in rotation for long enough after being stirred. Water has, however, already quite low friction and it is hard to find something more "thin". In stead he suggested that we used the so-called "Leidenfrost effect": that a water drop can move almost without effort across a hot plate, because the boiling water creates a cushion of water vapor for the drop. Instead of water, we chose liquid nitrogen, which boils at – 200°C and therefore boils like crazy at room temperature. Unfortunately, we cannot show this experiment live, since it is too difficult to get and handle liquid nitrogen in such large quantities, but the other video "Polygons in Liquid nitrogen" shows what happens when liquid nitrogen is poured into a pot, which is kept warm in a water-bath, and stirred rapidly. Again, polygonal structures are formed spontaneously and, despite the wildly boiling, chaotic flow, they rotate almost like a rigid body.

Most of the videos are made with a high-speed camera at around 1000 pictures pr. second and what you see is slowed down by around a factor of 40.

art surrounding ***rotating polygons*** ——— Imagine one of the many times you have stirred a pot. If you stir really quickly, you create a centrifugal movement that presses the liquid out towards the sides of the pot. Something similar happens in **Fabrizio Plessi**'s work *Acqua Obliqua*. Here, however, the centrifugal movement has been stopped and is frozen in a sequence of instants that provide the work with a dimension of absurdity and which defy our immediate knowledge of the world – for is it really possible that liquids in a container which stands on an even surface can appear to have such a gradient?

Now imagine that it is only the bottom of the pot mentioned above that rotates. The circular formation is broken up and you will see a polygonal and changing shape consisting of a triangle, a square, a pentagon ... At first glance it may appear to be easy to distinguish between what is fluid and what is angular – what is chaotic and what seems strictly defined. It is therefore extremely surprising that in certain circumstances something which is liquid and has no particular shape can form both corners and create well defined geometrical figures.

Apart from the fact that the rotating polygons depart from our expectations, they make us wonder about the connection between various world phenomena. Since antiquity, this connection has been expressed through philosophical considerations. "Everything flows", Heraclitus said. But that all things change does not necessarily mean chaos. Chaos is organized, and the rules of chaos govern the processes that constitute our reality. Our human body is part of this large, ordered system, and the body can, as we know it from *The Vitruvian Man*, be inscribed in a circle and a square. According to several Greek philosophers, the basic geometrical forms thus constitute an inherent structure of everything that is.

Such a geometrical structure unfolds in both **Sirous Namazi**'s and **Richard Mortensen**'s reliefs. In Mortensen's work, the simplicity of the construction principle is quite clear; nevertheless imaginary rotating movements occur, as if in a camera lens that tries to focus on something meaningful in the middle of the work, where there is nothing. As is the case in Tomas Bohr's experiment, the bulk of the work itself seems to be whirled away from the centre in a dynamic movement, so that what remains is the pure and exposed form. In his relief, Namazi quite deliberately plays on the relationship between what is eminently visible and the underlying construction principles, between chaos and order. His work seems on the one hand to be in an unstable, restless, permanently changeable and spinning movement, while on the other it appears to be geometrically calculated and as reliable as a part of an industrial machine.

This reciprocal and optical interplay is reinforced in both Gunnar Aagaard Andersen's painting and in Jesper Dalgaard's relief. Faced with these works, our eyesight and perception skills are being tested, because we do not know where to focus. Both works are composed of geometrical figures that interweave in such a way that polygonal forms occur perpetually and succeed each other, dependent on whereto we direct our attention.

As is the case with fluid dynamics, art thus offers us not just one immediately obvious truth. Rather art uncovers aspects of reality which we may not be used to focussing on, and art shows us that what we see is very much dependent on our own perspective on the world.

Fabrizio Plessi
Acqua Obliqua, 1975

Richard Mortensen
Relief Polycrome, 1964

Sirous Namazi
Metropolis, 2018

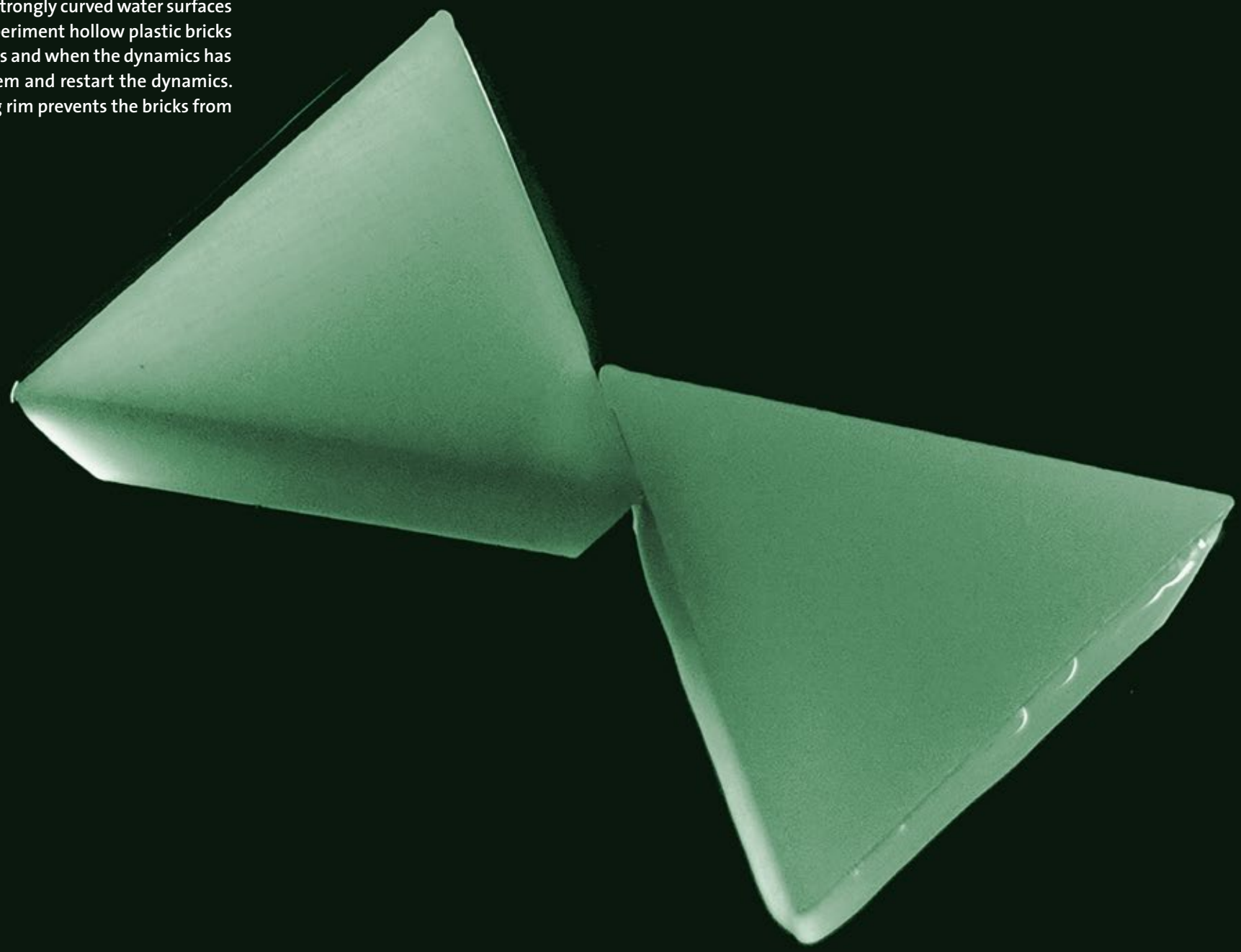
wunderkammer 1 — *fluid form*

floating bodies and surface tension

Experiment by Anders Andersen, Alexis Duchesne, Erik Hansen, and Tomas Bohr.

Light objects that move in a water surface, can attract each other due to surface tension. It is a well-known phenomenon for those who, for breakfast, have cereals, like corn flakes or cheerios, which can float on milk. The forces originate in the strongly curved water surfaces adjacent to the floaters, and are very short range. In the experiment hollow plastic bricks float on a water surface. Eventually they will gather in groups and when the dynamics has stopped one can use the little “brick-poker” to separate them and restart the dynamics. Try to guess who is going to attract who... The black floating rim prevents the bricks from gathering at the otherwise very attractive rim.

The video shows some close-ups of the capturing-process.
Love between plastic bricks?



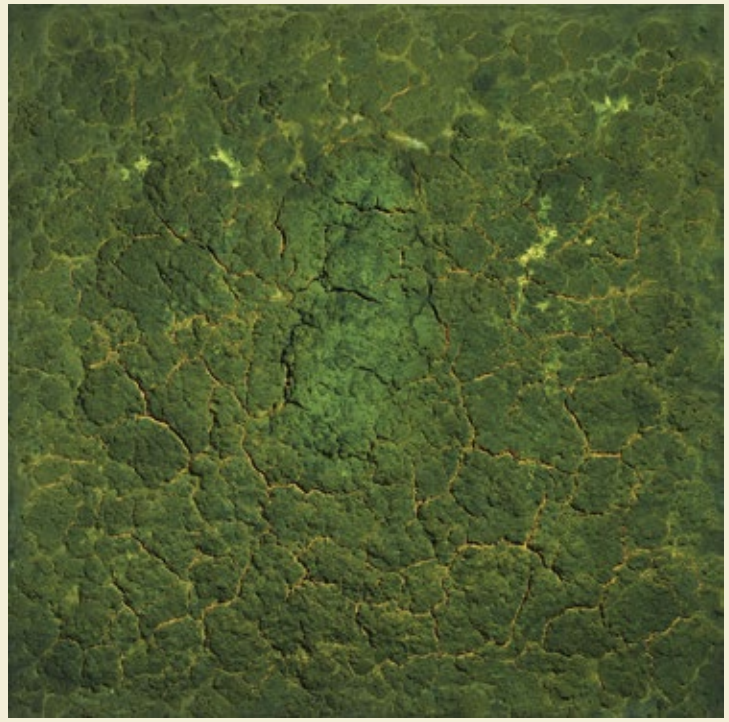
art surrounding ***floating objects and surface tension*** —— Probably most of us have tried letting a water tap remain open for so long that the glass underneath the tap flows over. If you manage to close the tap just before this happens, you may see that due to the surface tension the water surface is dome shaped above the top of the glass. The opposite visual effect is created if you prefer wine in your glass instead of water. When you air the wine by swirling it in the glass, the resulting evaporation of alcohol is largest at the sides of the glass; therefore there are differences in the surface tension that force the liquid away from the middle of the glass. Instead the liquid is 'pulled' up the sides.

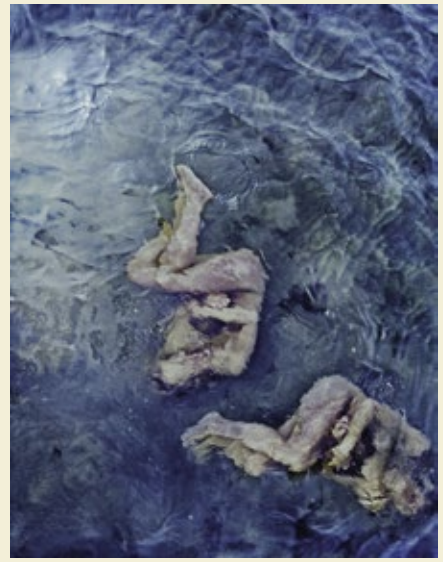
Several artists are deliberately working with various techniques that build on exactly these conditions. **Bosco Sodi's** pastose and experimental works with visible cracks and crackles are also the result of such opposing tensions in the surface that occur when paints of different thickness and density dry. Contrary to the delimited, objective experiments carried out by scientists, Sodi deliberately lets it be ruled by chance. In his artistic experiments he does define the framework through his choice of technique and materials that include clay, natural fibers and sawdust, but it is the mutual influence between the materials and their surroundings (e.g. how the materials dry) that creates the final expression and subsequently the final picture.

Thus we are looking at a process during which the artist lets the laws of physics and nature rule, relinquishing his control of his works, which paradoxically appear minimalistic and tightly composed. This makes way for the occurrence of a strange underlying connection between Sodi's dry conceptual statement and Tomas Bohr's experimental setup, in which floating objects, due to the surface tension, are drawn to each other, repelled, and drawn to each other once again.

In Lotte Rose Kjær Skau's imagery, various elements such as digitally generated pictures of human intestines are floating among each other in a continuous and steady rhythm, which is well known to us from lava lamps and computer screensavers. The interdependent movements of the pictorial elements are defined by the rise and fall of stock market prices. Through her work, Skau raises questions about the relationship between organic and technological, between natural and human – between the interior and the exterior of the human body, both of which, for better or worse, are part of a symbiotic flow with the surrounding world.

The tension of the body's relations with its surroundings is a pivotal point in the works of both **Per Morten Abrahamsen** and **Carl Krull**. However, while the bodies of Abrahamsen's *Weight* seem to have shut themselves up and sunk back into a sort of weightless embryo-like condition, Krull's mythical olmec figure attempts to stretch the surface and break through the membrane between itself and the surrounding space. The two works share the ambiguous relationship between the body and its surroundings by rendering visible the powers that are at play, and by showing how we, as human beings, are confronted with both stretched and resistant surfaces and forces that carry us away and obliterate the boundaries between our internal and external empirical world.





Bosco Sodi
Untitled (0279), 2013

Per Morten Abrahamsen
Weight, 2018

Carl Krull
Olmec 6, 2014

the hydraulic jump

Experiment by Anders Andersen, Alexis Duchesne, Erik Hansen, and Tomas Bohr.

In the experiment one can see what happens when a liquid jet impinges vertically on a horizontal plane, so that the liquid can spread out freely in all directions – an idealization of what happens when the water from the faucet hits the kitchen sink.

The friction from the plate slows down the flow as it spreads out, but surprisingly this takes place very abruptly, since the depth of the flow suddenly increases at a certain radius, where a "hydraulic jump" appears. Inside the jump there is "one-way communication" due to the large velocity of the flow: local disturbances cannot move inward against the current, only outward with the current.

When you press the button, the fluid depth will slowly change by raising the outer circular rim over which the liquid has to flow to exit, and in that process one can see that the jump can have very different structure and flow. To stabilize the jump we mix water with glycerol (in the ratio 1:2) and the viscosity of the mixture thereby becomes around 15 times that of water. Glycerol is a non-toxic sugar-like liquid used e.g., as thickener in ice cream, but even so one should not touch the liquids in this or any other of our experimental setups.

When the liquid height is maximal a lot of air bubbles will be created at the exit of the bottom reservoir (take a look there too!) and they give good opportunities to see the otherwise invisible flow. As you can see in the niche close to the experiment, Leonardo da Vinci was fascinated by this flow and since then, many well-known scientists have dealt with it. Which does not imply that there is a widespread agreement on the description. A videocamera under the table shows, via a hole in the table and a mirror, the view of the jump from below.

In the video one can see high-speed movies of the hydraulic jump both with pure water and with the water-glycerol mixture used here. The movies are taken at around 1000 pictures pr. second and what you see is slowed down by around a factor of 40.

The experiment is based on a model designed by Clive Ellegaard and Tomas Bohr, both then at the Niels Bohr Institute and built by the workshop of the Niels Bohr Institute around 1998.

art surrounding ***floating objects and surface tension*** —— Imagine a dam bursting from a level of water pressure that it was constructed to withstand. In a similar way, the human mind may burst under pressure, leaking thoughts and emotions into the world in a process upon which neither the individual nor the surroundings are left untouched. The Nina Saunders chairs in many ways constitute such a mental dam-burst. As such, her *Delicate Landscape*, which is a fluid hybrid between armchair and sculpture, is an abstract rendering of a changeable, melancholic state of mind, in which the rupture drains the work's 'contents' which drop towards the floor and flow into our space.

William Anastasi's iconic 'pour' is another result of such a dropping level, in which the enamel paint is poured down the wall to let it splash against the floor and leave a puddle of black. The final work is the result of a process that already happened and consists of the traces of this process, performed by the artist and gravity together.

Mush like Anastasi, **Keith Tyson** deliberately investigates the field of tension between regularity and coincidence. In his *Nature Paintings*, he pours paint onto an aluminum plate, whereby processes that he may well know but cannot foresee are set in motion and complete the work.

A hydraulic leap may occur in different ways. It may occur when large bodies of water are released and forcefully and uncontrollably fall downwards, hitting a lower lying surface. Or it can, as shown in Tomas Bohr's experiment, appear much more delimited and well defined, like when the water from a tap hits the bottom of a sink, causing the water to be forced outwards and leaving a circular pattern around the jet of water.

Jeppe Hein's poetic singing bowl pieces constitute an example of such controlled and stringent expressions. Hein's works are created by pouring paint into a so-called sound (or singing) bowl that is placed in the middle of a piece of paper. The bowl functions like a kind of bell that vibrates when struck and a stick is moved around its opening. The vibrations generate high-pitched even-sounding tones and make the paint dance, so that coloured drops jump over the rim of the bowl and land on the paper underneath in a circle formation that mimes the effect of the water jet in the sink.

Figuratively, the space is vibrating, too, when we stand in front of **Troels Aagaard**'s work. In this case the powers at play are more chaotic, reminding us of the turbulence involved when water rushes over the pebbles at the bottom of a stream. Aagaard strengthens this effect, but he also creates a counter-movement by breaking with the two-dimensionality of the painting and letting the work bulge out into the room. In this way he creates a literal dynamic breach between the levels of the painting's space and our space – a breach that demands that we activate our physical presence and all our senses.

The works in this part of the exhibition thus indicate in various ways the level changes and the dislocations of meaning, the changeability and processes that affect something external to them selves. As is the case with the powers of nature, the works affect us, too, and unite us with phenomena that exist in our immediate surroundings, although we, in our everyday lives, hardly sense them.

Troels Aagaard
On the Shoulders of Giants, 2009

Keith Tyson
Nature Painting, 2008

William Anastasi
One gallon high gloss enamel, poured, 2009

wunderkammer 1 — *fluid form*

works a —— å

A Kassen (DK)
Aluminium Pour (II), 2016
Aluminium cast
60 × 25 × 27 cm
Courtesy of the artists & Galleri Nicolai Wallner

A Kassen (DK)
Aluminium Pour (V), 2016
Aluminium cast
70 × 58 × 45 cm
Courtesy of the artists & Galleri Nicolai Wallner

A Kassen (DK)
Aluminium Pour (VI), 2016
Aluminium cast
90 × 35 × 34 cm
Courtesy of the artists & Galleri Nicolai Wallner

A Kassen (DK)
Stain, 2018
Sitespecific mural, photo
Variable dimensions
Courtesy of the artists & Galleri Nicolai Wallner

Per Morten Abrahamsen (DK)
Weight, 2018
Photo
75,8 cm × 60 cm
Courtesy of the artist

Per Morten Abrahamsen (DK)
Undercurrent, 2018
Photo
120 cm × 120,5 cm
Courtesy of the artist

Per Morten Abrahamsen (DK)
Lullaby, 2018
Photo
120 cm × 90 cm
Courtesy of the artist

William Anastasi (US)
One gallon high gloss enamel, poured, 2009
Esbjerg Art Museum

Jean Arp (FR)
Figuration, undated
Lithography
495 × 350 mm
Esbjerg Art Museum

Artnode (DK)
Jesper Just The Man Who Strayed (Video), 2017
Printed plaster
20 × 8 × 12 cm
Courtesy of the artists

Artnode (DK)
Kirstine Roepstorff Merry Xmas (jpeg), 2017
Printed plaster
19 × 20 × 20 cm
Courtesy of the artists

Artnode (DK)
ArtSpace (artspace oversight), 2017
Printed plaster
18 × 17 × 14 cm
Courtesy of the artists

Thomas Bang (DK)
S 1, 1974
Plaster and canvas
8 × 117 × 85 cm
Esbjerg Art Museum

Ejler Bille (DK)
Round Shapes, 1939
Bronze
h. 31,5 cm
Esbjerg Art Museum

Ejler Bille (DK)
Pastel (black), 1981
Pastel
87 × 80 mm
Esbjerg Art Museum

Vilhelm Bjerke-Petersen (DK)
The Young Walk, 1935
Oil on canvas
100 × 78,8 cm
Esbjerg Art Museum

Tone Bjordam (NO)
Liquid Landscape, 2005
Video
Courtesy of the artist

Tone Bjordam (NO)
Plasma, 2007
Photo mounted in light box
47 × 60 cm
Courtesy of the artist

Tone Bjordam (NO)
Formula, 2007
Photo mounted in light box
47 × 60 cm
Courtesy of the artist

Tone Bjordam (NO)
Photosynthesis, 2007
Photo mounted in light box
47 × 60 cm
Courtesy of the artist

Maj-Britt Boa (DK)
Water, 2018
Sound installation
Courtesy of the artist

Bosch & Fjord (DK)
Colon, 2003
Fibre glass, car paint
230 × 60 × 60 cm
Coloplast A/S

Mikkel Carl (DK)
Untitled (Those Who Are Awake Have a World in Common, While Each Person Asleep Has a World of Her Own), 2017
Mixed media
90 × 90 cm
Courtesy of the artist

Mikkel Carl (DK)
Untitled (Those Who Are Awake Have a World in Common, While Each Person Asleep Has a World of Her Own), 2017
Mixed media
160 × 120 cm
Courtesy of the artist

Mikkel Carl (DK)
Untitled (Those Who Are Awake Have a World in Common, While Each Person Asleep Has a World of Her Own), 2017
Mixed media
39 × 45 cm
Courtesy of the artist

Mikkel Carl (DK)
Untitled (Those Who Are Awake Have a World in Common, While Each Person Asleep Has a World of Her Own), 2017
Mixed media
40 × 60 cm
Courtesy of the artist

Claus Carstensen (DK)
x-pollination (6), 2003
Acrylic and spray on canvas
250 × 166 cm
Esbjerg Art Museum

Søren Dahlgaard (DK)
Michalowska, ed. 1/2, 2011
C-print
150 × 110 cm
Courtesy of the artist and Gallery Hjorth

Søren Dahlgaard (DK)
Marita, ed. 1/2, 2012
C-print
150 × 110 cm
Courtesy of the artist and Gallery Hjorth

Jesper Dalgaard (DK)
Reconnaissance…, 2013-14
Mixed media
115 × 120 × 11 cm
Courtesy of the artist

Christian Dotremont (BE)
Neige et Larmes
(Snow and Tears), 1969
Ink on paper
435 × 620 mm
Esbjerg Art Museum

Christian Dotremont (BE)
Obscurité blanche
(White Darkness), 1969
Ink on paper
609 × 823 mm
Esbjerg Art Museum

Olafur Eliasson (DK)
Drawings, 1999
Coal drawings, series of 6
537 × 537 mm
Esbjerg Art Museum

Olafur Eliasson (DK)
Model of Toroid with Vortex, 2013
Sterling silver
18,5 × 22 × 22 cm
Courtesy of the artist, Neugerriemschneider, Berlin, Tanya Bonakdar Gallery, New York and Los Angeles

Rose-Lynn Fisher (US)
The Topography of Tears, series of 48 prints, 2018 (various image dates)
Print on paper
21,6 × 28 cm
Courtesy of the artist & Craig Krull Gallery, Los Angeles

Wilhelm Freddie (DK)
Portrait Aerodynamique (Aerodynamic Portrait), 1937
Oil on canvas
100 × 80 cm
Esbjerg Art Museum

Ib Geertsen (DK)
Landscape, Cool Morning, Svendborg, 1944
Oil on canvas
21,3 × 29,5 cm
Esbjerg Art Museum

Ib Geertsen (DK)
Composition, Birkerød, August, 1948
Oil on canvas
36 × 26 cm
Esbjerg Art Museum

Ib Geertsen (DK)
IV, 1976
Serigraphy
574 × 448 mm
Esbjerg Art Museum

Nils Erik Gjerdevik (NO/DK)
Untitled, 2014
Oil, alkyd and acrylic on canvas
60 × 90 cm
Courtesy of Nils Stærk Gallery

Nils Erik Gjerdevik (NO/DK)
Echo no. 4, 2016
Oil on canvas
190 × 190 cm
Courtesy of Nils Stærk Gallery

Nils Erik Gjerdevik (NO/DK)
Untitled, 2014
Oil on canvas
165 × 97 cm
Courtesy of Nils Stærk Gallery

Nikos Gyftakis (GR)
Self Portrait, 2008
Oil on canvas
30 × 24 cm
Courtesy of the artist

Nikos Gyftakis (GR)
Liquid Tranquility, 2016
Oil on canvas (diptych)
80 × 60 cm & 76 × 56 cm
Courtesy of the artist

Jørgen Haugen Sørensen (DK)
Portraits, 1997
Clay and iron
159 × 115 × 89 cm
Esbjerg Art Museum

Henry Heerup (DK)
Ornament, 1937
Pencil on paper
120 × 187 mm
Esbjerg Art Museum

Jeppe Hein (DK)
Frequency Watercolours II (D) #02, 2014
Watercolour on acid free archival paper
126 × 126 cm
Courtesy of the artists & Galleri Nicolai Wallner

Jeppe Hein (DK)
Singing Bowl Watercolours #5, 2012
Watercolour on acid free archival paper
150 × 150 cm
Courtesy of the artists & Galleri Nicolai Wallner

Jeppe Hein (DK)
Singing Bowl Watercolours #8, 2012
Watercolour on acid free archival paper
150 × 150 cm
Courtesy of the artists & Galleri Nicolai Wallner

Jörg Herold (DE)
Meer (Sea), 2012
B/w copy laminated on canvas revised with water colours and chinese ink

wunderkammer 1 — *fluid form*

42 × 60 cm
Courtesy of Galerie EIGEN + ART Leipzig / Berlin

Jörg Herold (DE)
Arbeiter (Worker), 2012
B/w copy laminated on canvas revised with water colours and chinese ink
42 × 60 cm
Courtesy of Galerie EIGEN + ART Leipzig / Berlin

Jörg Herold (DE)
*Segler (*Sailor), 2012
B/w copy laminated on canvas revised with water colours and chinese ink
60 × 42 cm
Courtesy of Galerie EIGEN + ART Leipzig / Berlin

Jörg Herold (DE)
Fuhrmann (Coachman), 2012
B/w copy laminated on canvas revised with water colours and chinese ink
60 × 42 cm
Courtesy of Galerie EIGEN + ART Leipzig / Berlin

Louise Hindsgavl (DK)
Perfect Cocktail, 2014
Porcelain
32 × 46 × 26 cm
Courtesy of Hans Alf Gallery

Louise Hindsgavl (DK)
The Lovers #2, 2018
Porcelain
53 × 38 × 48 cm
Courtesy of Hans Alf Gallery

Louise Hindsgavl (DK)
The Forest #1, 2018
Porcelain
45 × 37 × 31 cm
Courtesy of Hans Alf Gallery

Louise Hindsgavl (DK)
The Forest #2, 2018
Porcelain
57 × 24 × 36 cm
Courtesy of Hans Alf Gallery

Johannes Holbek (DK)
In the Furnace, 1899
Ink and pen on paper
470 × 350 mm
Museum Jorn, Silkeborg

Johannes Holbek (DK)
Composition With Dancing Woman and Sitting Man, 1900
Pen, water colour and golden bronze on paper
340 × 450 mm
Museum Jorn, Silkeborg

Astrid Kruse Jensen (DK)
Fragments of Remembrance #7, 2014-15
Archival pigment print
110 × 110 cm
Scandinavian Eye Center

Astrid Kruse Jensen (DK)
Fragments of Remembrance #11, 2014-15
Archival pigment print
110 × 110 cm
Scandinavian Eye Center

Asger Jorn (DK)
Titania I, 1940-41
Oil on canvas
120,5 × 115,5 cm
Louisiana Museum of Modern Art, Humlebæk. In deposit: Museumsfonden af 7. december 1966.

Asger Jorn (DK)
Untitled, 1959
Etching
182 × 298 mm
Esbjerg Art Museum

Eske Kath (DK)
Hurricane Party, 2006
Acrylic and collage on canvas
280 × 260 cm
ARoS Aarhus Art Museum

Ferdinand Ahm Krag (DK)
Vision Serpent (descending), 2018
Mixed media on paper
140 × 100 cm
Courtesy of the artist

Ferdinand Ahm Krag (DK)
Vision Serpent (ascending), 2018
Mixed media on paper
140 × 100 cm
Courtesy of the artist

Ferdinand Ahm Krag (DK)
Forcefield Climber, 2015
Video installation
Courtesy of the artist

Carl Krull (DK)
Olmec 6, 2014
Pencil on paper
172 × 118 cm
Courtesy of the artist

Carl Krull (DK)
Omicron no. 13, 41, 54, 55, 66, 77, 83, 86, 98, 2015
Pencil on paper
300 × 240 mm
Courtesy of the artist

Thorbjørn Lausten (DK)
Untitled, 1971
Tempera
498 × 475 mm
Esbjerg Art Museum

Christian Lemmerz (DK)
Portrait, 2005
38 × 32 cm
Etching
Private collection

Roy Lichtenstein (US)
Hopeless, 1964
Serigraphy
92,7 × 92,7 cm
Kunsten Museum of Modern Art Aalborg

Ann Lislegaard (NO)
The Maelstrom, 2017
3D animation
Variable dimensions
Courtesy of the artist

Jens Lund (DK)
The Day of the Lord comes like wa Thief at Night, 1899
Pen and ink on paper
505 × 683 mm
The Jens Lund collection at Vejen Art Museum

Jens Lund (DK)
From Distant Countries, 1899
Pen, ink and watercolour on paper
507 × 723 mm
The Jens Lund collection at Vejen Art Museum

Jens Lund (DK)
Untitled (Palm Trees in Fantasyland), 1899
Pen and ink on paper
510 × 727 mm
The Jens Lund collection at Vejen Art Museum

Jens Lund (DK)
The Forest of Despair, 1900
Pen and ink on paper
460 × 682 mm
The Jens Lund collection at Vejen Art Museum

Jens Lund (DK)
The Forest of Madness, 1900
Pen and ink on paper
473 × 673 mm
The Jens Lund collection at Vejen Art Museum

Paul McDevitt (UK)
Masked Dancer, 2017
Pastel on paper
149 × 108,5 cm
Courtesy of the artist & Martin Asbæk Gallery

Anton Melbye (DK)
Troubled Sea, 1852
Oil on canvas
42 × 61 cm
Ribe Art Museum

Richard Mortensen (DK)
Figure, 1946
Ink on paper
302 × 214 mm
Esbjerg Art Museum

Richard Mortensen (DK)
Relief Polycrome, 1964
Painted wood
112 × 128 × 11,5 cm
Esbjerg Art Museum

Richard Mortensen (DK)
The Odyssey 21. and 22. Song: Cry of the Swallow, 1972
Serigraphy
603 × 456 mm
Esbjerg Art Museum

Richard Mortensen (DK)
The 12 Seasons – for Jean Arp (no. 5/22), 1992
Ink on paper
760 × 560 mm
Esbjerg Art Museum

Richard Mortensen (DK)
The 12 Seasons – for Jean Arp (no. 6/22), 1992
Ink on paper
760 × 560 mm
Esbjerg Art Museum

Richard Mortensen (DK)
The 12 Seasons – for Jean Arp (no. 8/22), 1992
Ink on paper
760 × 560 mm
Esbjerg Art Museum

Richard Mortensen (DK)
The 12 Seasons – for Jean Arp (no. 10/22), 1992
Ink on paper
760 × 560 mm
Esbjerg Art Museum

Richard Mortensen (DK)
The 12 Seasons – for Jean Arp (no. 18/22), 1992
Ink on paper
760 × 560 mm
Esbjerg Art Museum

Sirous Namazi (IR)
Metropolis, 2018
3D PVC-print
20 × 20 × 50 cm
Courtesy of the artist & Galerie Nordenhake Stockholm / Berlin

Sirous Namazi (IR)
Metropolis II, 2018
Steel and lacquer
Diameter 120 cm
Courtesy of the artist & Galerie Nordenhake Stockholm / Berlin

Palle Nielsen (DK)
Atmospheric Pressure, 1957
Linocut
140 × 198 mm
Esbjerg Art Museum

Palle Nielsen (DK)
Down the Slope. The Ship, 1959
Linocut
141 × 197 mm
Esbjerg Art Museum

Palle Nielsen (DK)
In the World of War, 1959
Linocut
176 × 249 mm
Esbjerg Art Museum

Erik Ortvad (DK)
Copenhagen, 1935
Pencil and ink on paper, mounted on cardboard
227 × 291 mm
Esbjerg Art Museum

Fabrizio Plessi (IT)
100 Pezzi d'Acqua (100 Pieces of Water), 1973
Photo on wood (series of 6)
73,5 × 101,5 cm
Courtesy of the artist & Beck & Eggeling International Fine Art, Düsseldorf / Vienna

Fabrizio Plessi (IT)
Camminare sull'Acqua (Walking on Water),1975
Photo (series of 12)
37 × 46,5 cm
Courtesy of the artist & Beck & Eggeling International Fine Art, Düsseldorf / Vienna

Fabrizio Plessi (IT)
Acqua Obliqua (Oblique Water), 1975
Photo on wood (series of 4)
101,5 × 73,5 cm
Courtesy of the artist & Beck & Eggeling International Fine Art, Düsseldorf / Vienna

Nikolaj Recke (DK)
Crystal tears, 1993
Photo and object
Variable dimensions
Courtesy of the artist

Tobias Rehberger (DE)
Infections II , 2014
Velcro, light bulbs, wires, cables
Variable dimensions
Esbjerg Art Museum

Alexis Rockman (US)
Multi-Waterspout, 2006
Oil on gessoed paper
129,5 × 189,9 cm
Private collection

Alexis Rockman (US)
Aral Sea, 2007
Oil on gessoed paper
187,3 × 128,3 cm
Courtesy of the artist & Salomon Contemporary, New York

Alexis Rockman (US)
Railyard, 2008
Oil on gessoed paper
157,5 × 221 cm
Courtesy of Warren Lichtenstein's private collection

Troels Sandegård (DK)
Self-portrait, Respiration and Perspiration 29/02/2018 -02/04/2018
Anodized aluminium, chloride, sodium, lactic acid, potassium, calcium, sulphate, magnesium, nitrate, phosphate
118 × 98 cm
Courtesy of the artist & Asbæk / Grønvald Art Consulting

Troels Sandegård (DK)
Self-portrait, Respiration and Perspiration 17/03/2018 -21/04/2018

Burnished copper, chloride, sodium, lactic acid, potassium, calcium, sulphate, magnesium, nitrate, phosphate
57 × 48 cm
Courtesy of the artist & Asbæk / Grønvald Art Consulting

Troels Sandegård (DK)
Self-portrait, Respiration and Perspiration 09/06/2017 -30/06/2017
Brass, chloride, sodium, lactic acid, potassium, calcium, sulphate, magnesium, nitrate, phosphate
102 × 87 cm
Courtesy of the artist & Asbæk / Grønvald Art Consulting

Troels Sandegård (DK)
Self-portrait, Respiration and Perspiration 12/12/2016 -06/01/2017
Steel, chloride, sodium, lactic acid, potassium, calcium, sulphate, magnesium, nitrate, phosphate
82 × 71,5 cm
Courtesy of the artist & Asbæk / Grønvald Art Consulting

Nina Saunders (DK)
Delicate Landscape, 2009
Mixed media
120 × 118 × 77 cm
Esbjerg Art Museum

Nina Saunders (DK)
Downward Trend, 1998
Mixed media
85 × 56 × 74 cm
Esbjerg Art Museum

Peter Nansen Scherfig (DK)
(Movement) Polymorphosis, 1998
Painted plaster
50 × 100 × 50 cm
Esbjerg Art Museum

Lotte Rose Kjær Skau (DK)
Park_Etc., 2018
Animated video
Courtesy of the artist

Christian Skeel (DK)
Forest Lake II, 2004
Oil on canvas
140 × 125 cm
Courtesy of the artist

Christian Skeel (DK)
Sea Chest, 2006
Oil on canvas
178 × 189 cm
Courtesy of the artist

Bosco Sodi (MX)
Untitled (0279), 2013
Mixed media on canvas
186 × 186 cm
Courtesy of Galerie EIGEN + ART Leipzig / Berlin

Bosco Sodi (MX)
Untitled (2115), 2013
Mixed media on canvas
150 × 150 cm
Courtesy of Galerie EIGEN + ART Leipzig / Berlin

Bosco Sodi (MX)
Untitled (2116), 2013
Mixed media on canvas
150 × 150 cm
Courtesy of Galerie EIGEN + ART Leipzig / Berlin

Rainer Splitt (DE)
Pouring (sulfur), 2018
Pigment, polyuretan
Variable dimensions
Courtesy of the artist

Thomas Struth (DE)
Stellarator Wendelstein 7-X Detail, Max Planck IPP, Greifswald, Germany, 2009
C-Print
203 × 253 cm
Louisiana Museum of Modern Art, Humlebæk. Purchased with support from Augustinus Fonden.

Margrete Sørensen (DK)
Untitled, 1981
Lithography
500 × 625 mm
Esbjerg Art Museum

Keith Tyson (UK)
Nature Painting (Planet), 2008
Mixed media on aluminium
Diameter 122 cm
Courtesy of the artist & Keith Tyson Projects Ltd.

Keith Tyson (UK)
Nature Painting, 2008
Mixed media on aluminium (series of 5)
30 × 30 cm
Courtesy of the artist & Keith Tyson Projects Ltd.

Kirstine Vaaben (DK)
Essentia 1-19, 2017
Watercolor and pen on paper
Each 33 × 25 × 3 cm (framed)
Courtesy of the artist

Margit Vasby (DK)
Water Essay I, 1980
Etching
303 × 357 mm
Esbjerg Art Museum

Victor Vasarely (HU/FR)
Sonne und Himmel (Sun and Sky), 1971
Serigraphy
838 × 740 mm
Esbjerg Art Museum

Victor Vasarely (HU/FR)
Hat III, 1974
Copper intaglio
460 × 398 mm
Esbjerg Art Museum

James Welling (US)
FD39OW, 2012
Archival inkjet print
121,9 × 101,6 cm
Courtesy of the artist & David Zwirner Gallery

James Welling (US)
G19BC, 2009/2012
Archival inkjet print
121,9 × 101,6 cm
Courtesy of the artist & David Zwirner Gallery

James Welling (US)
G12C, 2012
Archival inkjet print
121x 101,6 cm
Courtesy of the artist & David Zwirner Gallery

James Welling (US)
FDGK, 2012
Archival inkjet print
121x 101,6 cm
Courtesy of the artist & David Zwirner Gallery

Svend Wiig Hansen (DK)
Eddies, 1962
293 × 495 mm
Etching
Esbjerg Art Museum

Svend Wiig Hansen (DK)
Eddies, 1962
336 × 477 mm
Etching
Esbjerg Art Museum

Svend Wiig Hansen (DK)
Eddies, 1962
293 × 495 mm
Etching
Esbjerg Art Museum

Svend Wiig Hansen (DK)
Eddies, 1962
293 × 495 mm
Etching
Esbjerg Art Museum

Svend Wiig Hansen (DK)
Eddies, 1962
350 × 494 mm
Etching
Esbjerg Art Museum

Svend Wiig Hansen (DK)
The White River, 1974
243 × 465 mm
Linocut
Esbjerg Art Museum

Svend Wiig Hansen (DK)
The White Prince, 1974
327 × 442 mm
Linocut
Esbjerg Art Museum

Svend Wiig Hansen (DK)
Dissolution, undated
255 × 330 mm
Etching
Esbjerg Art Museum

Mogens Zieler (DK)
Fishing Boats From Makkaser, undated
Wood cut (coloured)
277 × 550 mm
Esbjerg Art Museum

Peter Zimmermann (DE)
co/CC, 2003
Epoxy on canvas
270 × 170 cm
Esbjerg Art Museum

Troels Aagaard (DK)
Double Structure. Sometimes repeated #4, (Albers vs. Hokusai), 2013
Acrylic on canvas
155 × 320 cm
Courtesy of the artist & Galerie MøllerWitt

Troels Aagaard (DK)
Primary Structures #2, 2014
Acrylic on canvas
80 × 140 cm
Private collection

Troels Aagaard (DK)
On the Shoulders of Giants, 2009
Acrylic on masonite
122 × 176 × 37 cm
Esbjerg Art Museum

Gunnar Aagaard Andersen (DK)
The Aboslute Possibility of Combination of The Contrasts Between Value and Quality, 1950
Oil on canvas
96,8 × 129,8 cm
Esbjerg Art Museum

wunderkammer 1 — *fluid form*

A publication by
ESBJERG KUNSTMUSEUM / Esbjerg Art Museum
on the occasion of the exhibition

Wunderkammer 1 – fluid form
06.10.2018-17.03.2019

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Experiments: Anders Andersen, Alexis Duchesne, Erik Hansen, Tomas Bohr
Video: Barbara Bohr
Exhibition design: Christiane Finsen, Inge Merete Kjeldgaard
Project coordination: Birgitte Ørom
Dissemination: Christiane Finsen, Inge Merete Kjeldgaard
Educational programme and workshops: Birgitte Ørom, Diana Boholm
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