Graphic Interfaces for Notation Conference

UPIC

Symposium – Panel Discussion – Concerts

ZKM Cube & Lecture Hall   28.9.–29.9.2018

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Free Entry For Participating Artists/Speakers

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Friday –
14:00
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20:00

Installations by Chikashi Miyama, Rodolphe Bourotte & Sharon Kanach

Ludger Brümmer

Preface

This symposium is intended to explore current approaches and contemporary trends in the field of graphic notation for parameter generation in music as well as the historical importance of the "UPIC" system used by composers for their creations. When the "UPIC" (Unité Polyagogique Informatique de CEMAMu, Centre d'Études de Mathématique et Automatique Musicales) was developed by composer Iannis Xenakis in the 1970s a completely new technical interface was born on the foundations of the idea of notation. Using the tablet interface, composers for the first time could control musical parameters, waveforms and entire works directly on an electronic tablet while the computer was converting them into sound in real time. Drawing thereby becomes the vehicle of both the micro- and macrostructure of a musical work. The revolution in graphic composition triggered by Xenakis and supported by other established computer musicians such as Jean-Claude Risset or Curtis Roads continues forty years later thanks to modern computer programs, such as the graphic open source sequencer "IanniX" and "HighC" and lately "UPISketch". ▌Artists as well as musicologists will resituate the "UPIC" in the following days in both a historical and cultural context and also discuss the state of the art in the field of electroacoustic sonifications of graphic notations in lectures, a panel discussion and concerts presenting works created with "UPIC" or similar approaches. The symposium will also serve to prepare a book publication planned for 2019 by the editors Sharon Kanach of the Centre Iannis Xenakis (CIX) and by Ludger Brümmer of the ZKM | Center for Art and Media Karlsruhe. Along with the symposium one incarnation of the UPIC is shown in the exhibition "100 Meisterwerke" as well as an interpretation of Xenakis' "Polytopes" in the ZKM Subspace called "N-Polytope" accessible from 19:00–20:00 on Friday and Saturday. ▌The "UPIC – Graphic Interfaces for Notation Conference" is organized in cooperation with Centre Iannis Xenakis and funded within the framework of the "Interfaces" project supported by the Creative Europe program of the EU.

Abstracts

28.9.

Symposium Session I   14:00 – 18:00

Cyrille Delhaye

Composing by drawing with UPIC: land-marks, archives and traces of composers

Very early on, Iannis Xenakis intuited that a machine could assist musical composition through drawing. The first prototype, which he named UPIC, was created in 1977, at CEMAMu, the Paris research center he created. In 1985, the Ateliers UPIC were founded in Paris – an association to promote activities around this "drawing board for music". Since then, well over a hundred composers have composed using this tool, and an updated version for tablets and smartphones was released by the Centre Iannis Xenakis in 2018: UPISketch. ▌After a sketch of the genesis of the UPIC and some of the collaborations it has generated, the valorization activities for the CIX archives will be outlined – respecting the international standards of open archives, and partnership with the Centre national de la recherche scientifique (CNRS).

Alain Després

The 1980s: UPIC is less than ten years old

The presentation is divided into two parts. The first part "Towards a Pedagogy of Creativity" focuses on the choices made by the developer team, in agreement with Xenakis, during their efforts to transform UPIC into an effective tool, which anyone can use to develop creativity. Alain Després explains how groups of children, teenagers and adults – artists, dancers, musicians or not, people working at companies, stay-at-home mothers, visually impaired people, and others – have used UPIC to test their skills: creating elements of their music, creating sound objects, combining them, making them evolve, imagining listening, listening in order to verify, adjusting, and combining these elements at a higher level until they produce a macro-form. In other words, composing. In the second part of the presentation "The First Steps around the World" Després will discuss the history of UPIC: its early stages – the first public appearances, first workshops, master classes, journeys, and concerts – between 1979 and 1990.

Guy Médigue

The Early Days of UPIC

At the beginning of 1976, Iannis Xenakis was looking for a professional computer engineer to analyze and implement the first version of UPIC. Guy Médigue had eleven years of experience, and the CEMAMu hired him in March 1976. During his lecture, Médigue will describe the context of hardware and computer music at that time, and what exactly his contribution was. ▌ His lecture is divided into the following six parts: the history of UPIC, different acoustic examples, the ideas Iannis Xenakis wanted implemented, as well as various constraints, followed by the first version (UPIC A), and finally: users and events.

UPIC upside down

François-Bernard Mâche will talk about the debuts of UPIC, graphic synthesis and musical computing from 1966 to 1989. Technical testimonies on his normal or inverse use of the first UPIC in "Hypérion" (1987) and "Tithon" (1989) will be discussed. Mâche reflects on the advantages and risks of musical computing for a composer, in particular with regard to sampling. He will use the comparison and discuss that UPIC has a similar technological impact on notation history as the renewals in the ars nova subitlior around 1400. François-Bernard Mâche will also reflect on the use of natural models compared with the traditional approach of "music as language", in connection with a certain modern reappraisal of humanism.

Abstracts

29.9.

Symposium Session II   10:00 – 13:00
Symposium Session III   14:00 – 18:00

Julian Scordato

Graphic scores from UPIC to IanniX

Democratization, technological innovation, and multimodality are key elements in the development and implementation of features in tools for graphic notation. In this context, the transition from the first UPIC to the latest version of IanniX shows a proliferation of functionalities, typologies, and applications of graphic scores for music, sound, and beyond. These aspects will be discussed, with supporting examples and details of specific creative processes, in order to outline a perspective on current usages.

Current 9 – Audiovisual Composition

Mark Pilkington will discuss his compositional approaches of working with audiovisual media to create electroacoustic music. Primarily focusing on the composition "Current 9", which integrates non-representational imagery with electronic sounds, through the development of an interactive performance platform. The concept of "Current 9" is to combine hand drawn sketches and computer generated forms to form an interactive graphic score in motion. The talk outlines the similarities of movement, identity, and space shared by audio and visual media. These entities form the basis for the creation of visual music through the appliance of interdisciplinary methodologies, to establish morphological behaviours across audiovisual events. ▌ "Current 9" is inspired by the work of the early avant-garde kinetic filmmakers, which linked music and pictorial harmony; as well as by the compositional work of late Greek-French composer Iannis Xenakis (1921–2001), and the UPIC system.

Chikashi Miyama

Developing software for audiovisual inter-action

This presentation addresses various issues of computer-based graph-ical notation systems – such as rendering algorithms, playheads, and three dimensionality – from the perspective of a software developer. It introduces notated scores, interactive installations, and software tool-kits developed and being developed by various programmers, including the speaker. These issues are not merely technical details. They are of-ten deeply related to the creative interaction between an artist and a computer-based tool, and have significant impact on the experience of computer-based art pieces.

Marcin Pietruszewski

Formalising form across multiple temporal scales

The aim of this lecture is to reflect on the design process and composi-tional practice of the New Pulsar Generator (nuPg) program. The nuPg builds upon and extends the original model of pulsar synthesis as first introduced by Curtis Roads in his seminal book Microsound (2001). The lecture will feature a demonstration of the program and provide an op-portunity to discuss pertinent aspects of its performance, such as inter-activity and musical data representation. These technological aspects of the nuPg will be further examined in the context of aesthetic experimen-tation focused on the formalisation of musical form and its multi-tem-poral affordances.

The Listening Hand video presentation

Through "The Listening Hand" Estrada will elucidate his experiences with Xenakis' UPIC system in 1980, which was when Estrada designed "eua'on". He has gained pedagogical experience with the UPIC system through a series of festivals at various locations such as Lille, Bordeaux, Paris, Nice, and Mexico City, as well as by working with children, the blind, painters and self-restricted composers. The pedagogical and artistic impact has furthered his creative work and inspired him to explore the continuum in music, from Cowell's rhythm-sound unity, Xenakis' continuum and his notion of macro-timbre, and finally multifactorial new musical models for instruments and voice. One example is the conversion of "eua'on" into the full orchestral macro-timbre of "eua'on'ome" (1995). His proposal as director of the CEMAMu is a 21st Century 3D UPIC to convert a continuum into a discontinuum-continuum, or pure into fuzzy musical materials.

UPISketch: Renewal of an old idea

This presentation, by Rodolphe Bourotte and Sharon Kanach, consists of four main sections. In the first, Kanach will present a succinct background regarding the conception and realization of Xenakis's original UPIC, "a musical drawing board for composition", including archival footage of Xenakis discussing the UPIC and his own projections for its future developments. Next, Bourotte will give a detailed description of the process and creation of the new application, UPISketch; followed by a first survey of preliminary results of its implementation with several groups of children, in Nicosia, Cyprus. In conclusion, future iterations of UPISketch will be discussed.

Panel Discussion

28.9.

Concert I

20:00

29.9.

Concert II

20:00

Concert I

Julian Scordato

Constellations 2014 / Vision II / Engi 2017, for graphic sequencer and electronics

"Constellations" (2014) is derived from an exploration of an imaginary celestial space, which is translated into sound space. How does each celestial sphere – starting with its manifestation as a unit – interact with the cosmos where it belongs? How does it react to existing laws? How does it transform itself, integrating with the system, all the way to its own loss of identity? In contrast with this process, the constellations underline the uniqueness of the bodies by creating symbolic links – beyond their meaning, they constitute a classification and articulation device of the individual within the system. ▌ "Vision II" (2012) blends elements – including two graphic scores by Robert Moran and a soundscape of the city of Venice – which came together accidentally, as objects of a dream and a vision. Not the world vision is important, but the counterpoint between appearance and anatomy of the image in its acoustic quality. The visual part determines the sound design aspects – it generates and controls the sound, integrating the particularity of the instant and the contingent. ▌ "Engi" (2017) is an audiovisual work based on the sonification of stellar data related to the North Polar constellations. Sound parameters are represented graphically and defined by certain observational data, as well as by physical characteristics of stars: Sound duration is proportional to the distance from the earth; amplitude is calculated considering the apparent magnitude; while the main frequency changes randomly, according to the spectral class. Six temporal dimensions are added in order to activate the stars with a combinatorial system that virtually produces perpetual change.

Julio Estrada

eua'on 1980, for UPIC (fixed media version)

"eua'on" (1980), is Julio Estrada's one work created with UPIC, a reference to his break with the universe of scales and a discovery of new musical relationships: seeing and hearing. To avoid an electronic timbre Estrada

digitized his voice, a multiphonic modulated by an infra-grave hoarse roar. "eua'on" is a long coral cry of almost a hundred voices, dense mass that refers to the filamentous sonority of the wind, with physical almost human voice collective transformations. The impossibility of manipulating the waveform in the UPIC led Estrada to produce dynamic envelopes crossing constantly the rhythm-sound border. That matter led him to the notion of a continuous macro-timbre, a fluid alien to synchrony, whose convergence and dispersion equate to rest and turbulence, where the evolution is made of glissandi, crescendi-decrescendi or vibrati. The transcription from "eua'on" to "eua'on'ome" (Nahuatl: one, two), for orchestra was commissioned by the Donaueschinger Musiktage (1995). "eua'on'ome" generalizes the macro-timbre to the whole orchestra. "eua'on" and "eua'on'ome" are a duality contrasting the electroacoustic flexibility vs. musical writing. Both versions are dedicated to the memory of Estrada's father, Manuel Estrada.

Marcin Pietruszewski

/s v/ 1989 for synthetic voice and computer generated pluriphonic sound

The "/s v/" (2018) is an experimental opera; a duo for synthetic voice and computer generated sound; an algorithmic script for auditory scene formulation; and an elemental synthetic laboratory where the sensible, the intelligible, the artificial, and the natural are animated and combined. The work integrates a novel hybrid sound and speech synthesis design with an adaptation of Xenakis's sieve algorithm, and features an original text of libretto written by Virginia Barratt and Chris Shambaugh. In a continuous probing between synthetic material and a formalised sieve procedure the work explores, manipulates and amplifies conditions, qualities, and degrees of intensity between the physiological act of articulation, the sonority of speaking voice and its computer (re)modelling.

François-Bernard Mâche

Tithon 1989, fixed media

The mood of "Tithon" is related both to typical sounds of summertime and to ancient mythology. Tithon, Lady Dawn's lover, was formerly transformed

into a cicada. This happened because, after years of careless happiness, his immortal lover realized that every time she came and saw him, he was a little more tired and decaying. She then got Zeus to grant that Tithon be immortal like herself. But she forgot to ask for everlasting youth, along with that immortality, Tithon withered away, drying out till he became as dry as an insect. His metamorphosis did not prevent his never-ending love, and every morning he goes on greeting Lady Dawn with his music.

Concert II

Chikashi Miyama

Piano Chimera [2008], video / Strokes [2018, UA], audiovisual performance / Modulations [2013/2018], for interactive multimediasystem

All the works presented and exhibited are related to the topic of audio-visual correlation, and thus to graphic notation in different ways. The aim of the video work "Piano Chimera" (2007) is to establish a contrapuntal relationship between image and sound. "Strokes" (2018) is a short improvisational study for a dedicated software that sonifies drawn lines in realtime. "Modulations" (2013), a sensor-based audiovisual performance, attempts to establish a unity of the human body with live sound and generative video, using gestures and movements as a common language among them. The interactive installation "Mirror of Sound" (2016) visualizes the intricate relationships between sound, time, and us.

Mark Pilkington

Current 9 [2018], audiovisual performance / Lamaload A/V [2017], audiovisual composition (8 channels)

"Current 9" is an audiovisual performance that integrates non-representational imagery with electronic sounds through an interactive performance platform. The piece combines hand-drawn stop-frame animation with coded structures that form an interactive graphic score in

motion. ▌ "Lamaload A/V" is an audiovisual composition that addresses the ecology of a rural setting. The presence of the Lamaload dam in the Peak District National Park, UK offers a unique audiovisual experience. Its architectural form provides an acoustic screen that magnifies and reflects the sounds. Photographic and graphic images of the dam and surrounding area are directly animated by natural and human-made sounds – achieved by using a custom-built program that analyses eight channels of an acousmatic composition, visualized across eight corresponding screens.

Wilfried Jentzsch

Paysages Y 757 [2014], fixed media

Realized with Zirkonium software, the conception of this acousmatic composition is based on space and sound movements in that space. The hemispheric construction of the Klangdom (Sound Dome) is characterized by a continuous sound diffusing area, and was correlated to the continuous frequency range (from a semitone to 10 octaves) of the musical structure. The Chinese lute is used as source material, from which a random sequence has been generated. This sequence has been compressed in frequency range (from 1.0 to 0.2), into 32 variations, producing a varied microtonal structure (Max/MSP). Spectral extraction has been applied to produce two new sounds by separating the noise component from the harmonic component, thus allowing the creation of an evolution between the two components. This complex sound material was laid out in 24 tracks, and was spatialized in 3D configurations. Some of the most important configurations are: rotations varying in speed, direction and height; dropping sounds (from ring 5 to 1); and diagonal movements through the space. All configurations create an imaginary sound world, in which the listeners will be immersed.

Alexej Wieber

Klanggewebe [2018], live electronics

The piece "Klanggewebe" (started in 2018) is an attempt to connect visual patterns and structures in nature with a sonic equivalent. The

arrangement of textures in objects like snowflakes, wings of insects, leaf veins, and, on microscopical levels, in cells, show us a unique form of self-similarity, which is never repeated in the same form. To apply this concept to the piece, a IanniX graphic sequencer is used to generate a unique score each time the piece is performed, determined by algorithmic rules and given constraints. This generative score sends control data to the programming environment Pure Data, where the sound is generated. Depending on the cursor and trigger positions in IanniX, the sound is transformed and manipulated.

Biographies
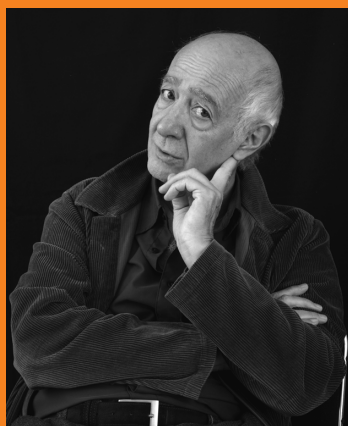
Rodolphe Bourotte

Composing and improvising pure music, sound installations, and music for theatre and dance since 1998, Rodolphe Bourotte studied composition with Allain Gaussin, Jean-Yves Bosseur, Paul Méfano, and at Les Ateliers UPIC, in Bordeaux, Geneva and Paris. Bourotte was one of the founding members of the CLSI ensemble in 2007. He developed several programs linking graphics and sound, such as UPISketch, Pegasus, and Comma.

Cyrille Delhaye

Musicologist Cyrille Delhaye (PhD) is associated with the GRHis of the University of Rouen. A specialist in concrete music, his thesis focused on "Orpheus" by Pierre Henry and Pierre Schaeffer. Since 2011, he has been working on the valorization of the Centre Iannis Xenakis (CIX) archives – making it possible, since March 2018, to consult the digitized CIX archives on the CNRS Huma Num servers.

Alain Després

A director of artistic and cultural organizations for over 25 years, Alain Despres was instrumental, alongside Iannis Xenakis, in the creation of Les Ateliers UPIC. He has organized and hosted numerous concerts, master classes, and workshops at universities, schools, and contemporary art festivals, in North America, Japan and most of Europe. He established Alpha Centauri, a cultural organization that promotes collaboration between researchers, artists and such institutions as the French National Center for Scientific Research, CEA (Commissariat à l'énergie atomique), technical schools, universities, and ministries. He has collected stones over the years, and in the past two decades has engaged in the more personal pursuit of direct carving.

Julio Estrada

Mexican composer, musicologist, theorist, and researcher Julio Estrada was born in Mexico City in 1943, and is of Spanish descent. He studied composition with Orbón in Mexico, and, from 1965 to 1969, with Messiaen, Boulanger, Pousseur, and Xenakis in Paris; additionally taking courses with Stockhausen in Cologne from 1968 to 1969, and Ligeti in Darmstadt in 1972. He later studied computer music at Stanford University in 1981, and at CEMAMu in Paris from 1980 to 1983, as well as Amerindian music in New Mexico in 1987; and gained a doctorate from the University of Strasbourg, with his dissertation "Théorie de la composition: discontinuum-continuum" (1994). "After an initial phase in

the tradition of Webern and Stockhausen, Estrada's compositional process developed throughout the 1970s from the 'controlled uncertainty' of Memorias (1971) to the elaboration of his "theory d1", beginning with the series "Cantos" (1974–80) and "Diario" (1980). "Eua'on" (1980), produced using the UPIC system (transcribed for orchestra in "eua'on'ome", 1995), marks a turning point in Estrada's creative work. Adopting Mexican Indian titles, his music draws inspiration from nature, utilizing materials in transition and fluid movements (such as glissandi or accelerandi–ritardandi), based on his theory of the continuum." (Text: Monika Fuerst-Heidtmann in: Grove's Dictionary of Music and Musicians, 2014)

Wilfried Jentzsch

Born in 1941, he studied composition at the Musikhochschule Dresden and the Akademie der Künste Berlin, and electronic music in Cologne. From 1976 to 1981, he studied at the Sorbonne in Paris under Xenakis, where he was awarded a doctorate in the field of musical aesthetics. He simultaneously researched digital sound synthesis at IRCAM and the CEMAMu. He was professor of composition and the director of the Electronic Studio at the Musikhochschule Dresden from 1993 to 2006. His electroacoustic and his visual musical works have been presented at ZKM, VMM Boston and New York, Cinema Fest Melbourne, CEMC Beijing, EMUfest Rome, GRM Radio France, Cinema Nouveau Montréal, Musiques & Recherches Bruxelles, and in Tokyo. He also works as a curator of visual music. Jentzsch has received international composition prizes in Boswil, Paris, Bourges, and ZKM Karlsruhe; and participated in numerous festivals worldwide. Since 2008, Wilfried Jentzsch has lived in Düren (near Cologne).

Sharon Kanach

The American musician Sharon Kanach first went to France to study with Nadia Boulanger. Very soon, however, she met Iannis Xenakis (1922–2001), with whom she collaborated closely, especially on his writings (arts/sciences: alloys, formalized music, music and architecture). In 2009, she founded the Xenakis Project of the Americas, under the auspices of the Brook Center for Music Research and Documentation at the Graduate Center of City University of New York, and became co-vice president of the Centre Iannis Xenakis based at the Université de Rouen, under the auspices of the research lab Groupe de Recherche d'Histoire (GRHis).
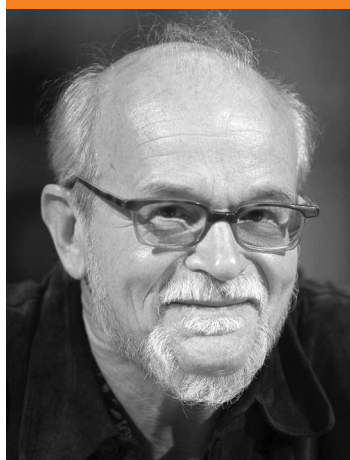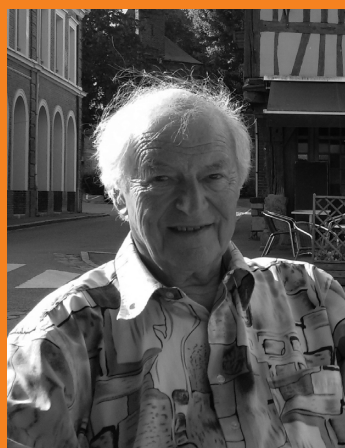
François-Bernard Mâche

François-Bernard Mâche has had two careers at the same time. As a composer, he has been invited to and played in about thirty countries and received the Prix Italia (1977), the Grand Prix National de la Musique (1988), and the Grand Prix de la Musique Symphonique de la Sacem (2002). His catalogue now includes 114 works, illustrating all genres and all techniques. In addition, in his academic career as an associate and doctor of philology, he directed the Music Department of the University of Strasbourg for 10 years , published seven books, and finished his teaching career as Director of Studies at E.H.E.S.S. (School for Advanced Studies in the Social Sciences). In 1990, he received the highest order from the French Ministry of Culture, and is a Commandeur des Arts et Lettres and knight of the Order of Academic Palms. He has been a member of the Académie des Beaux-Arts since 2002, occupies the chair of the late Iannis Xenakis and was appointed doctor honoris causa by the University of Athens in 2011.

Guy Médigue

Guy Médigue is a computer engineer from Auffargis, France. He worked with traffic programs for SEMA international Paris, from 1965 to 1969. From 1970 to 1975, Médigue was involved with real time industrial systems, as well as simulation tools, at CERCI. From 1976 to 1980, he was a member of the CEMAMu team for the analysis and implementation of UPIC. Subsequently, at CNET, Médigue focussed on a multi-microprocessor computer (SM90); and from 1991 to 1996, worked with Chorus System, a communication-oriented operating system.

Chikashi Miyama

Chikashi Miyama is a composer, video artist, musical interface designer, and performer. He studied computer music, composition, and software development in Japan, Switzerland, and the US; and received a Ph.D from the University at Buffalo, New York. He currently teaches at the College of Music and Dance, Cologne; and works as a software developer for ICST Zürich and Dear Reality GmbH Düsseldorf.

Marcin Pietruszewski

Marcin Pietruszewski is a researcher and composer of computer music based in Edinburgh. He has collaborated extensively – e.g., Curtis Roads (nuPG), Marcus Schmickler (Dem-

os) and Florian Hecker (Normification, FAVN) and presented his works internationally at CTM/Transmediale Festival, ICA in London, IMMA in Dublin and MUMUTH in Graz.

Mark Pilkington
Dr. Mark Pilkington is a composer and performer of electroacoustic music. His practice comprises sound and image in electroacoustic music, installation, and screen-based works. His works have been performed, exhibited, and screened at international conferences and such festivals as ICMC, ARS Electronica, MANTIS festival, and Open Circuit.

Julian Scordato
Julian Scordato is a composer, sound artist, and music technologist. He holds a bachelor degree in Composition and a Master of Arts in Electronic Music from the Conservatory of Venice. In addition, he received an MA in Sound Art from the University of Barcelona, for his thesis on "IanniX" software documentation; and was a research assistant for the Sound and Music Processing Lab (Conservatory of Padua). Scordato currently works as a professor of Music Informatics at the Conservatory of Salerno.

Alexej Wieber
Born in 1992 in Wiesbaden, Germany, Alexej Wieber completed his Bachelor of Arts in Pedagogy and Art at the University of Erfurt from 2012 to 2017. Since 2017 he has been working on a Bachelors degree at the Staatliche Hochschule für Musik Trossingen, where he studies with Ludger Brümmer. Currently he is working on two projects. One of them is "Freizahletüden" (started in 2017), which is a collection of short experiments and improvised recordings that never take longer than one hour from sketch start to finish. In addition, his current interests have led him to the possible sonification of non-audio related content such as words, pictures and film. This guided Wieber to his second project "Klanggewebe", which is constantly under revision. This project has a stronger emphasis on algorithmic composition and the use of audio programming. Right now he is also preparing a musical piece about the text "Strahlender Untergang" (1982), by Christoph Ransmayr, which will contain a combination of instrumental and electronic music.
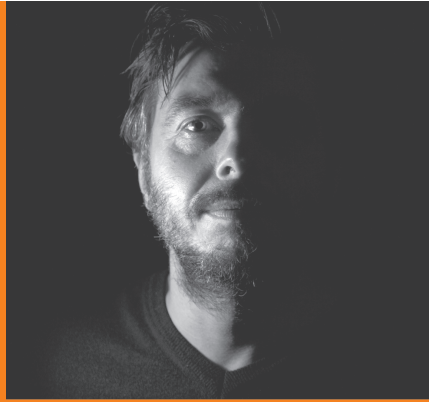
Installation

28.9.

Subspace   19:00 – 20:00

29.9.

Subspace   19:00 – 20:00

Chris Salter

N-Polytope: Behaviors In Light And Sound After Iannis Xenakis 2012/2017

In collaboration with:

Sofian Audry, Adam Basanta, Marije Baalman, Elio Bidinost, Thomas Spier

The installation "N-Polytope" is a homage to the polytopes of the 1960s and 1970s by Iannis Xenakis. The first of his revolutionary multimedia room compositions was premiered at the French Pavilion in Montreal at Expo 67. The new configuration for the ZKM subspace consists of 126 powerful LED lamps and many tiny loudspeakers distributed over the entire room. They are suspended from a geometric "control surface" of thin aircraft cables, creating a light and sound environment that constantly oscillates between order and disorder. ▌Participants oft he UPIC-Symposium can visit the installation on Friday and Saturday between 19:00 and 20:00.

Upcoming Events

10/3–7/2018   **Wed–Sun**

Beyond Festival 2018 – Future Design

Movies, symposium and exhibition on virtual reality, artificial intelligence and post-capitalism   ZKM, HfG and Film Palace at ZKM

Further information: www.beyond-festival.com

10/12/2018   **Fri**

Chordeograph: Strings – Body – Reality

Workshop with guest artist Gero Koenig

Meeting point information desk | 17:00 | Admission free

10/19/2018   **Fri**

Chordeograph augmented reality

Instrument and graphic score as participatory composition. Accessible installation, discussion with artist Gero Koenig and Clarence Barlow and concert performance   Cube | 18:00 | Admission free

10/27/2018   **Sat**

Jubilee concert 25 years Aleph Guitar Quartet

World premiere of a new work by Andres Nuño de Buen; Vinko Globokar: Revé ènigmatique No. 135, and other works   Cube | 20:00 | Entry 10/7 €

11/4/2018   **Sun**

Augmented piano concerto & Beethoven's Symphony no. 7

Classical chamber orchestra and electroacoustic piano. ensemble re-flector under the direction of Thomas Klug with Kaan Bulak at the augmented piano.   Part of the fellowship program #bebeethoven.

Cube | 18:00 | Entry 10/7 €

11/24-25/2018   **Sat–Sun**

Giga-Hertz Award Festival

Giga-Hertz Award ceremony, concerts of award winners and of the SWR Experimentalstudio

Media Theatre, Cube, Music Balcony | Admission free

Project Team

Project Management	Ludger Brümmer & Yannick Hofmann
Curation	Sharon Kanach
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