institut für elektronische musik und akustik

DAFx/COMEDIA Concert

Tuesday Sept. 7th 2010, 8pm, György Ligeti-Hall

MUMUTH, University of Music and Performing Arts, Graz

IEM - Institute of Electronic Music and Acoustics

http://dafx10.iem.at/concert

Program

David Pirrò - *Chimera* (12mins)

Jörn Nettingsmeier - Reconstructing *Chroma XII* by Rebecca Saunders (11mins)

Natasha Barrett - *Reality and Secrets no.1* (18mins)

--Intermission--

You are welcome to enjoy the next piece in the lounge, just outside the hall. Please take your belongings with you, the setup in Ligeti-Hall is changed:

Gerriet Sharma and Franz Zotter - *grrawe* (11mins)

You are now invited back into Ligeti-Hall again for tonight's closing piece:

Ramón González-Arroyo - *Light Matters* (14mins)

Team

Ralf Beyer	Lights
Ulrich Gladisch	Sound
Peter Plessas, IEM	Concert organization
Winfried Ritsch, IEM	Concert organization

With special thanks to:

Peter Fischer, Gernot Gottlieb, Max Hirschbäck, Stefan Kienreich, Sabine Landl, Gabriele Lausecker, Jürgen Macek, Margit Mahmoudi, Maria Müller-Lorenz, Gertrude Reinbacher, Bernadette Moser, Jürgen Sukic, Gabriele Watz-Prein, Andreas Zinser, and all IEM staff.

Space is what prevents everything from happening at the same spot

It seems to me that the composers and researchers who created the pieces we hear tonight have been also inspired by this simple but powerful idea. The use of space as a compositional device has a long history, which gained a tremendous momentum with the invention of new media technologies such as the Telephone or the Phonograph, and more recently with the advances of spatial audio technology, such as Higher-Order Ambisonics, Wave Field Synthesis, Tracked Binaural Rendering, or Acoustic Beamforming. The promises new technologies are associated with are usually mercilessly challenged in artistic research and creation processes. Sometimes new audio technologies end up being used quite against the grain in a composition – potentially creating an important stimulus for further research. A strong interaction between research and creation seems to be the other common characteristic of the works presented tonight. They share many concerns about the spatial in music while exploring very individual artistic and technical solutions. In "Chimera" David Pirrò uses a physical model to induce a particular coherence between and within groups of sounds emitted by 28 loudspeakers, thus secreting an unorthodox but very intriguing spatiality. In reconstructing a performance of Rebecca Saunders' "Chroma XII", Jörn Nettingsmeier enables us to experience an excerpt of the piece from different acoustic perspectives without having to change our listening position. Natasha Barrett takes the captured spatial movements of the original sound sources she worked with as a starting point for "Reality and Secrets no. 1", a piece exploring strong spatial contrasts virtuosically. After the intermission we will witness in the foyer of the György Ligeti Hall what could be called an inside-out solution to the problem of sound projection. With "grrawe", co-created by Gerriet K. Sharma and Franz Zotter, we will experience a device allowing for the composition of and with radiation patterns. After returning to the György Ligeti Hall, Ramón González-Arroyo will present "Light Matters", a piece composed for a particular loudspeaker configuration and based on his "conception of sound matter as a quasi-plastic object".

Gerhard Eckel

David Pirrò

Chimera (2010)

The Chimera is an illusion, a phantom composed of a mixture of different organisms. The source system is treated as a whole, an individual being, but composed by different parts each having a different character. These sub-beings are made up of the single sources or the single cells and claim their own subspace. This creature is embodied by a complex physical model in which the relations between the sub-beings and between the cells, as well as the relations between the whole and all its parts are composed. Exciting the model, the movement of the cells and of its parts causes a coherent deformation of time properties of the sound sources. This distortion causes the illusion, the Chimera, of motion of sound in space.

David Pirrò, born 1978 in Udine (Italy), began his musical education at an early age studying piano at the Conservatory J. Tomadini and then jazz piano with Mo. Glauco Venier. Studying at the University of Triest he obtained the Master's degree in Theoretical Physics. Advancing in his musical education at the Conservatory G. Tartini he obtained a Master's degree in Computer Music, focussing on audio–visual composition. He further worked at the Center of Computational Sonology in Padua and collaborated in various electroacoustic and audio-visual projects with Prof. Paolo Pachini. Currently David is employed at the IEM in Graz, and a PhD student with supervisor Prof. Gerhard Eckel.

Jörn Nettingsmeier

Reconstructing *Chroma XII* by Rebecca Saunders – a recording experiment (2010)

For lack of a better category, *Chroma* is spatial chamber (or turbine hall,or museum, or philharmonic, or baroque-gallery-with-anterooms and french garden) music. Its sounds originate from two pianos, two percussion sets, two violins, a cello, two double basses, an electric guitar, two trumpets, two clarinets, an (electric) organ, a large number of wind-up music boxes and a portable record player. In the composer's words:
Chroma explores three different key issues: the architecture of the space, the density of the collage in the given acoustic, and the nearness or distance to the different music being performed. So firstly, it's about entering into a dialogue with an architectural space, exploring and emphasising the particular characteristics of the space.1
For each staging, Chroma is adapted to its new environment by the composer. The audience is invited to move freely around the place during the performance. Conditions permitting, the piece is performed twice in close succession, so that the listeners can explore two different paths through the soundscape.

The excerpt you are listening to employs higher-order Ambisonics, a recording technique that aspires to be homogeneous (which means it has no favourite directions like Stereo or 5.1) and is agnostic of the loudspeaker setup used for playback. It has been obtained using a combination of traditional soundfield-type microphones, and more than 40 discrete spot mikes.
Unfortunately, you will have to remain seated while listening. To compensate, you will experience the acoustic scene change around you: from the reverberant interior of the

1 *[from an interview on the website of Huddersfield Contemporary Music Festival in 2010]*

huge baroque gallery of the Herrenhäuser Gärten in Hannover, Germany, to its no less vibrant but a lot less reflective garden. You are offered a humble glimpse into Chroma XII in the hope that it is inspiring, enjoyable and doing the composition justice. But when, after laying 500 metres of fibre and another 500 of copper leads, writing some 70 tracks to harddisk, you see the waxing moon rise over the double bass player as he is immersed in his music in the middle of the beautiful garden, while the nightingales sing and the smell of a cool summer night fills your nostrils, you can't help but look down at the really expensive microphone in your hand and wonder what the heck you're trying to accomplish here.
Well, at least we got the nightingales.

Jörn Nettingsmeier is a freelance audio engineer currently living in Essen, Germany. He specialises in applied Ambisonics, maintains a web server at http://stackingdwarves.net and hates to write about himself in the third person.

Natasha Barrett

Reality and Secrets no.1 (2010)

I think it is interesting how sound relates to its dynamic real-world system. Through investigating this relationship I hope to form a tighter bond between sound and the way it lives in the composition. The investigation often involves observation or modelling of the real-world context as it unfolds through time. In *Reality and Secrets no. 1* I studied the spatial activity of my chosen sources in their original context and experimented with how these dynamic systems could be used to guide sound transformation, spatial activity and temporal structures in the composition. Our everyday world is a hive of interesting spatial information. In acousmatic music we often use acoustic source material, recorded with various microphone techniques, capturing a specific spatial listening point. But in our normal day we perceive spatial information with many senses: most prominently with our ears and eyes, but also via touch and olfactory senses. Although spatial information is maybe most immediate for our hearing, visual cues can clarify a source's distance, its speed and direction, especially when multiple sources are in interaction. Touch and physical contact also yield spatial information too fine for our eyes or ears to decode, even if we are able to hear or see a change in behaviour of some undefined kind. In *Reality and Secrets no. 1* I chose two main contrasting source materials: children sledging downhill and cellist Tanja Orning performing various materials. In choosing these sources I was interested in contrasts of intimacy, proximity, spatial scales and dynamics, and the differences between an outdoor scene and a more controlled indoor situation. I used three methods to capture spatial information from the sources:

- Sound recordings of outdoor scenes using an SPS200 Soundfield microphone. The a-format recordings captured sounding spatial information at a low resolution, and were used as sound material in the composition.

- Video recording of the outdoor scenes. Video processing tracked the distance, relative perspective and angle of multiple objects moving through in the scene. The data was used to control spatial and sound transformations.

- 3D motion-capture (using the VICON mocap system and Qualisys software) to record the cellist's and cello's large and minute performance information at a very high data rate. The cello sound was recorded with two mono microphones without intending to capture spatial information in the sound source.

Compositional ideas resulted from investigating the transformation between these extremely different sounds and spatial expressions. For example: testing data reduction and mapping techniques, consolidating contrasting spatial scales, setting up ‘impossible’ listening positions (such as a virtual microphone placed in the centre of the cellist’s body), faking acoustic environments with ambisonics impulse response convolution, contrasting between accurate spatial synthesis and recorded audio environments, testing ways in which to create an image of size and dimension, and an appropriately changing audio image, from a point source trajectory. The composition is spatialised in three horizontal layers of 5^{th} order ambisonics, displaced vertically if appropriate (encoded with the ICST MaxMSP objects and my own granulation software), and one full 3D first-order layer (encoded with synthesis as well as captured in recording, decoded with Harpex). So far I have summarised the work in terms of technical points and factual ideas. The composition also contains its own world of reality and secrets, which I hope, in some way, will connect to you as a listener. Special thanks to Alexander Refsum Jensenius at the Institute for Musicology (University of Oslo) and cellist Tanja Orning. "Reality and Secrets no.1" was commissioned by NOTAM with support from the Norwegian Composers' Fund.

Natasha Barrett works fore-mostly with composition, research and creative uses of sound. Her output spans concert composition through to sound-art, large sound-architectural installations and collaboration with experimental designers and scientists. Whether writing for live performers or electroacoustic forces, the focus of this work stems from an acousmatic approach to sound, the aural images it can evoke and an interest in techniques that reveal detail the ear will normally miss. Sound’s spatio-musical potential features strongly in her work, over the past 10 years involving practical application of ambisonics and more recently the interactive spatial sonification of scientific data. Barrett studied in England with Jonty Harrison and Denis Smalley for masters and doctoral degrees in composition. Both degrees were funded by the humanities section of the British Academy. Since 1999 Norway has been her compositional and research base for an international platform. Barrett's works are performed and commissioned throughout the world, receiving numerous recognitions, most notably the Nordic Council Music Prize (Norden / Scandinavia, 2006), Giga-Hertz Award (Germany, 2008), Edvard Prize (2004, Norway), Noroit-Leonce Petitot (Arras, France, 2002 & 1998), Bourges International Electroacoustic Music Awards (France 2001, 1998 & 1995), Musica Nova (2001), IV CIMESP 2001, Concours Scrime, (France 2000), International Electroacoustic Creation Competition of Ciberart (Italy 2000), Concours Luigi Russolo (Italy 1995 & 1998), Prix Ars Electronica (Linz, Austria 1998), 9th International Rostrum for electoacoustic music (2002). Her installations include a major work for the Norwegian state commission for art in public spaces. Works are available on Aurora, empreintes DIGITALes, Euridice, Albedo, CDCM Computer Music Series and Cultures Electroniques Bourges. www.natashabarrett.org

Gerriet K. Sharma and Franz Zotter

grrawe (2010)

"For a couple of years only one inhabitant resided there, and also he was only rarely at home"

Sound-composition for an icosahedral loudspeaker. A collaboration between Franz Zotter and Gerriet K. Sharma 2009/2010. The IEM icosahedral loudspeaker radiates sounds into space in directions freely adjustable all around. Hereby, it simultaneously aims at improving the quality of technical realizations of both acoustic measurements

and the holophonic reproduction of natural sound sources. Progress in the development of its high-fidelity required for the use of the icosahedral loudspeaker as a technical and musical instrument was initiated when Gerriet K. Sharma joined a collaboration on his piece “grrawe” with Franz Zotter. During this collaboration, the development of the icosahedral loudspeaker was challenged by the requirements of the artistic work, which was also in progress, and could be tested accordingly. The results of these “inquiries”, in turn, could be considered in the development of the composition as well as the loudspeaker. On the one hand, the properties of the icosahedral loudspeaker were investigated aesthetically, considering spatialization, spatial organization, and directions of sounds and could be incorporated in the spatial sound-composition. On the other hand, the fidelity and the stability in operating this instrument evolved technically during the collaboration. The composition raises the question of the self-localization of individuals in their (sonic) environment or world. It is a continuous play with the perception of movement, distance and perspective. Where is the composer, where is the listener? Who is the composer and when does "world" come into being respectively when does it withdraw itself from the composer and or the listener? Can we look forward to finding an answer?

Gerriet K. Sharma. Born on 5 March 1974 in Bonn. Lives in Cologne and Graz. Postgraduate Studies (MFA) in Media Art at the Academy of Media Arts (KHM) in Cologne. Currently Master Studies in Electroacoustic Composition/ Computermusic at the Institute of Electronic Music and Acoustics (IEM), University of Music and Performing Arts in Graz. Since 1990 member of various ensembles for experimental music and sound art. Concerts, workshops, installations and performances at several festivals and exhibitions for electroacoustic music and sound art in Europe and abroad. Key aspects of activity are spatialization of electroacoustic compositions in Ambsonics and transformation into 3D-Soundsculptures. Site-specific sound installations in public places and buildings. Composition, production and performance of radiophonic ‘Hörstücke’ (ars acoustica) with focus on the equitable combination of speech, text and sound. Artistic research in the field of sound-picture relations in audio-visual installations film, tv and theatre.

Franz Zotter, born 1980 in Güssing, recently received a doctoral degree with his thesis on “Analysis and Synthesis of Sound-Radiation with Spherical Arrays” at KUG/IEM, Graz 2009. For intensifying work on his thesis he was awarded a research scholarship in 2007 at CNMAT, UC Berkeley. His expertise lies in theory and experimental practice on holographic analysis and holophonic resynthesis of sound radiation. In the course of his graduate studies he received two excellence scholarships and a master degree in Electrical and Audio Engineering from TU-Graz in 2004, with a thesis focusing on signal processing for audible noise suppression. He also worked as scientific chair at the first Ambisonics Symposium 2009 and collected some experience as a technical planner in room- and electro-acoustics in the years between 2000 and 2007.

Ramón González-Arroyo

Light matters (2010)

Light is important. Particle and wave, the substances of which light is made are airy, supple, ethereal matters. Whilst for physicists, according to their mathematical model, the vacuum is not void and there where there was nothing a tiny something might appear, with the other mathematical model, the one that regulates our everyday life, alchemists proof us that the only light emerges from certain minerals, heavy without doubt, and that there where you thought there was something, in reality there is nothing

at all. Trifle matters, unimportant questions; better, though, to get used to live within the unstable. This polysemy, this ambiguity of the title serves to colour a poetic world with which to continue my work on matters and materials, on surfaces and their spaces. Insubstantial matters, fluid, delicate, translucent; wave, grain; just reaching out for light from within sound. The piece was commissioned by the Groupe de Recherches Musicales de Paris, and premiered in June 2010 at the Salle Olivier Messiaen de la Maison de Radio France.

Ramón González-Arroyo, Musical studies at Madrid, and then Utrecht, Den Haag and Paris. Amongst his masters one should mention L. de Pablo, C. Bernaola, W. Kaegi, G. M. Koenig and H. Vaggione. Courses and seminars on computer music ar IRCAM, GRM and ACROE/ZKM. Collaborations on different musical research projects at different european institutions : Institute of Sonology (Holland), IRCAM (France), GMD, ZKM (Germany) or IEM (Austria). *FOO*, a model of environment for the composition of music with sound synthesis, designed at the ZKM of Karlsruhe, or *LISTEN*, an european research project embracing a relatively large number of institutions and aiming at the creation of a tool to design and compose "immersive audio augented environments", are some of his most beloved projects. At the present moment he starts a new project, *The Choreography of Sound*, in collaboration with G. Eckel. Exploring the relationships between the spatial and sound matter, the project will take place at the Institut für Elektronische Musik und Akustik of Graz. His music, including electroacoustic pieces (*Streams Extremes & Dreams, A Media Luna, Toiles en l'Air*), mixed (*De la Distance*, *Charybdis' Muse & Scylla's Bloom, Philia-Neikos*) or instrumental (*Clockwork, Nocturno, 'Twixt tinged twining threads*), has been played at different festivals and concert-season (Wien Modern, Berliner Inventionen, Festival Bartok, Musiques en Scène, Multiphonies, Multimediale). Since recently, attracted by he universe of installations, he has produced purely sound pieces (*L'isla des Neumas*) or, in collaboration with other artists, multi-disciplinary pieces (*Rain-Taps*, *Raumfaltung*), which have been presented at several european museums (KMB from Bonn, Samlung Essl from Viena, Koldo Mitxelena at San Sebastian).