Sound Anthology: Program Notes

. . . Time Will Tell . . . : Folkmar Hein, Curator

About the Music

This selection of music compiled for the readers of the current issue of *Computer Music Journal* is conceived as an imaginary concert. With a duration of just under 80 minutes, the sonic proceedings, including breaks, reach a length typical for a DVD, a CD, or a concert with electroacoustic music—not too short, not too long. The individual works, with lengths falling between 4 and 15 minutes, are also in the range of typical durations for electroacoustic music.

". . .Time will tell. . ."? Is this the "typical" example of music to which we have become accustomed? Does it meet our expectations? Surely not! Neither the familiar nor the expected are what are important, what matters is the new and unknown—that which is not easily explained or demystified. We are looking neither for witty and poetic explanations nor for scholarly elucidation and academic sagacity. We know full well that behind every work a tremendous amount of technical and scientific skill is involved, and that is something worth recognizing. Nevertheless, this Anthology is not based on a technical or scientific theme, but only on an auditory fiction: an acousmatic concert from—reflecting the international orientation of *CMJ*—an international collection of composers.

The term *acousmatic*, about which there has been some controversy, was introduced by the Groupe de recherche musicales (GRM), specifically by François Bayle, in 1974. The idea was that concertgoers should focus solely on the acoustic aspects of the performance and not be distracted by optical influences or anything else. This can be a challenge—and a difficult one at that—for 21st-century concertgoers, with the pervasive fixation on touchscreens as an optical distraction. This "concert" has the additional intention of showing that acousmatic works are being created outside of GRM's aesthetic world—in particular, in Swedish, British, and Japanese traditions—which are deliberately brought to the fore in this collection. It seems to me that acousmatic music coming from Sweden has not gained the recognition it deserves. (I am a great admirer of the Elektronmusikstudio [EMS] in Stockholm, which has always been a model in terms of internationality, infrastructure, freedom, hospitality, and equipment, without succumbing to any temptation of technology for the sake of technology.)

There is, incidentally, a common thread through the concert program: Each piece has an individual feeling of tempo, but in a mysterious way a similarly calm pace seems to dominate, interspersed with highly emotional moments of density, dynamics, spatiality, and exciting transformations of both concrete and synthetic sounds.

There is one unusual aspect to this imaginary concert: the concertgoers—all *CMJ* readers who access the audio data—can shape an individual program order for themselves, and they can freely choose between the stereo and multichannel versions of the works!

Some technical points are worth noting:

1. The eight pieces in the Anthology are in the conventional formats (stereophonic, quadraphonic, octophonic). None uses a surround-sound format, owing to the problematic nature of the center channel.
2. Each multichannel work is also available in a stereo version.
3. Channel assignments are either evident from the file names of the channels, or they are described in the program notes (specifically the works by Horacio Vaggione and Trevor Wishart).
4. All sound files are at a 48-kHz sample rate with 24-bit resolution. The multichannel versions consist of multiple single-track files or, in the case of Vaggione, tracks that are paired as stereo files.

In addition to the information given in the following notes, further documentation is available online at www.emdoku.de/en/search?query=CMJ%20Vol%2042%202018&sources=emdoku.

Time Will Tell (2013)—Manuella Blackburn

Tiny, microscale ticks, tocks, clanks, bumps, and rings combine together in new shapes and forms. Miniature sounds from time-keeping devices, old and new, were sourced and isolated for their brevity and "barely there" quality. Reassembling regular clock rhythms from an abundance of single clock ticks and strikes is a fundamental composition methodology in this work, along with the simulation or illusion of internal clock mechanics churning, rotating, and sometimes malfunctioning. The idea of clocks being wound and reset features as a structural device. Clock gongs, bells, and chimes also provide pitch content and harmonic moments throughout the work. This composition builds upon the microstructures constructed in "Switched On" (2011), which deals with the sounds from small switches, buttons, and dials used for powering up electrical devices.

"Time Will Tell" was realized at the Goodman Studio of the Experimental Media and Performing Arts Center (EMPAC) at Rensselaer Polytechnic Institute (RPI) in Troy, New York, and at the Liverpool Hope University in the United Kingdom. The

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Figure 1. Manuella Blackburn.

piece was commissioned by EMPAC. Many thanks go to Harry Vannucci from the Waterford Clock Company in New York and to Sir George White, keeper of the Clockmakers' Museum in London, for access to all the clocks in the collection. The work was premiered on 22 November 2013 at RPI.

This recording was mastered by Dominique Bassal in February to March 2017 in Montreal.

Track Duration: 8:24

Manuella Blackburn is a composer of electroacoustic music specializing in the creation of acousmatic music. She also composes for instruments and electronics, for improvising laptop ensembles, and for dance. She studied music at the University of Manchester, followed by a Masters in electroacoustic composition with David Berezan. She became a member of the Manchester Theatre in Sound (MANTIS) in 2006 and completed a PhD at the University of Manchester with Ricardo Climent in 2010.

Blackburn has worked in residence in the studios of Miso Music (Lisbon), EMS (Stockholm), Atlantic Centre for the Arts (New Smyrna Beach, Florida), and Kunitachi College of Music (Tokyo). Her music has been performed across Europe, Asia, and the Americas.

Blackburn received the Grand Prize in the Digital Art Awards at Fujisawa, Japan, in 2007, as well as numerous other awards and prizes for her acousmatic music. She is currently senior lecturer in music at Liverpool Hope University in the United Kingdom.

Resonant Quarks and *Figure in Movement*—Shintaro Imai

Both "Figure in Movement" and "Resonant Quarks" are works in which the composer creates musical variation with very brief recordings of natural sounds that are drastically altered in time to emphasize their microscopic movements. The sounds are subjected to extreme stretching and compression in time, as well as undergoing pitch shifts, density variation, spatialization, and other transformations—all using granular sampling techniques governed by probability and tendency-masking algorithms. The alterations always keep a certain continuity, and they are interpolated so that the materials remain identifiably derived from the same sound objects. So the sound materials act like individual figures in motion, rather than anonymous units used in composition.

Resonant Quarks (1998)

"Resonant Quarks" is the first work Imai created using the techniques described. In this work, four kinds of sounds, all of only 1 second in duration, were chosen as the main material. All signal-processing and control algorithms were programmed in Max/FTS running on a NeXT

Figure 2. Shintaro Imai.

computer using the IRCAM Signal Processing Workstation. The piece was realized at the Sonology Department of Kunitachi College of Music, Tokyo in 1998.

Track Duration: 12:00

In "Figure in Movement" the sound materials are all recorded flute, performed by Sabine Vogel using extended techniques. All the signal-processing and control algorithms were programmed in Cycling '74 Max. This piece was realized in 2005 at the Electronic Studio at the Technical University Berlin (TUB) in cooperation with Sabine Vogel.

Track Duration: 3:59

Born in 1974, **Shintaro Imai** studied at the Kunitachi College of Music, Tokyo, and at the Institut de Recherche et de Coordination Acoustique/Musique (IRCAM), Paris. He received a grant from the Japanese Agency for Cultural Affairs for the

Figure 3. Erik Mikael Karlsson.

period 2002–2003 and was guest composer at the Center for Art and Media (ZKM) in Karlsruhe, Germany. The following year he was a guest of the Artists-in-Berlin program of the German Academic Exchange Service (DAAD), where he worked as guest composer at the Electronic Studio of the TUB. From 2008 to 2011 he directed music of the Bauhaus Stage Projects in Dessau, and in 2012 served as tutor at the Darmstadt Summer Courses for New Music. He is currently associate professor and director of the Sonology Department of Kunitachi College of Music.

Imai's awards include, among many others, the Residence Prize at the International Electroacoustic Music Competition of Bourges and the first prize as well as the Special Prize for Young Composers at the Musica Nova competition in Prague. In 2016 he was composer-in-residence at the SinusTon festival in Magdeburg.

Interiors and Interplays (1994)—Erik Mikael Karlsson

The composer writes that it is not possible to describe a piece with a few words, particularly when the piece has many ideas as approaches rather than just one. Compositional ideas may run in parallel, some arise fragmentarily, some are tied together, and still others exist independently of the rest. Dialogues and contrasts, contacts and disclaimings embrace each other between the real and the imaginary, where gestures, poetry, timbre, and acoustics create an unspeakable longing for beauty. The attentive listener can also hear a few bars from the tune by Rodgers and Hart "The Lady Is a Tramp."

"Interiors and Interplays" was commissioned by Sweden's national public radio, Sveriges Radio, for the

occasion of the 30th anniversary of the Institute for Electroacoustic Music (EMS) in Stockholm in 1994. The piece was premiered in a live broadcast from the Sveriges Radio's concert hall, the Berwaldhall, in September 1994.

"Interiors and Interplays" was produced at EMS and in Sveriges Radio's Broadcasting House studios between February and June 1994. The sounds used consist of different kinds of *concrète* material, processed voices of a soprano and a tenor from the Swedish Radio Choir, and synthetic material generated by the Chant software, with some additional material collected during the composer's stay in Berlin from 1992 to 1993. A vast number of sounds were processed with software by Paul Pignon implementing time-pitch mapping, the giant Fourier transform, and running convolution.

Track Duration: 15:06

Erik Mikael Karlsson, born 1967 in Nynäshamn, Sweden, is a Swedish composer, primarily of electroacoustic music and sound art. He also works at Sveriges Radio in Malmö as head of programs. His music has been described as restricted and elegant, like music emanating from an inner landscape or an endless, concentrated world: deep, dark, and serene. His music and sound art are replete with structures, reflections, and phenomena of pure motion.

In 1985 Karlsson attended EMS to study composition and electroacoustic music, and he quickly earned international recognition with a series of prize-winning works. In the 1990s he was widely engaged as a composer by, among others, Groupe de Musique Expérimentale de Bourges, the Danish Institute for Electroacoustic Music in Århus, Westdeutscher Rundfunk in Cologne, La Muse en Circuit, INA-GRM in Paris, and Danish Radio in Copenhagen. He was a guest of the DAAD's Artists-in-Berlin program 1992–1993, during which he worked at the Electronic Studio at the TUB.

Karlsson has received numerous commissions, from the French government (Commande de l'Etat Française), the Westdeutscher Rundfunk in Cologne, and many others. His music has been performed around the world, and he has lectured regularly on his music at universities and conservatories in Europe and North America. Since 2001 he has worked at Sveriges Radio as presenter, producer, and project manager for classical and contemporary music. In 2015 he took on the role of head of programs for the departments of Culture, Drama, Music, and News at Sveriges Radio in Malmö.

Dark Matter (2018)—Åke Parmerud

"Dark Matter" is not about the mystical astronomic entity needed to

Figure 4. Åke Parmerud.

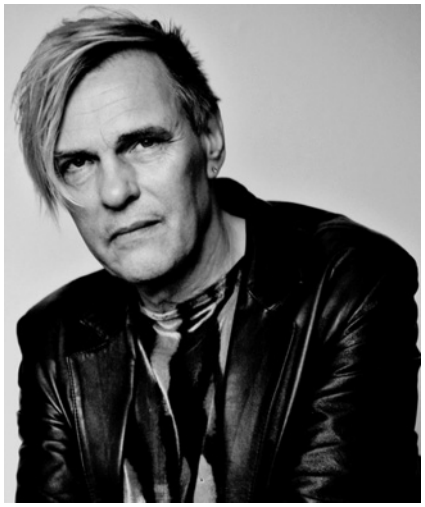
make the equations describing the behavior of the universe work. Invisible, and until now impossible to detect, it might just be a phantom of science. Instead, the piece is about sound "matter" that we normally cannot hear but that surrounds us wherever there are any kind of electric devices. Microwave ovens, cellphones, computers, light bulbs, and the like all emit electromagnetic fields of energy. These fields can be measured, recorded and made audible using special sensing devices. The majority of the sounds in the piece are recordings of these "invisible" sounds. As there may be dark matter alongside the matter that we can see and measure, so there are also sounds of electric phenomena that we can normally hear in the piece. Just as the dark matter of the universe is far more common than visible matter, however, so the inaudible "dark" matter of electromagnetic fields makes up some 90 percent of the piece. "Dark Matter" lets the listener walk through these fields and hear them as they would sound if they were not dark.

"Dark Matter" was commissioned by the Dias de Musica Electroacustica in Lisbon.

Track Duration: 9:24

Åke Parmerud has engaged in a professional career in contemporary music and media art since the late 1970s. Although he originally trained as a photographer (1972–1974), he went on to study music at university and subsequently the Goteborg Conservatory of Music. In addition to his electroacoustic and instrumental music, his work includes compositions covering a broad cross section of modern experimental music in the fields of dance, film, interactive art, multimedia, theatre, and video.

Parmerud's work first gained international attention when his piece



Proximities was awarded the first prize at the 1978 Bourges International Electroacoustic Music Festival. Since then he has received 17 international prizes and 3 major Swedish prizes. On two occasions he has also received the Swedish "Grammy" award for Best Classical Album of the Year, and his music has represented Sveriges Radio twice at Prix Italia. He is regularly commissioned to compose works by international institutions, and his works have been presented worldwide. In 1997 his composition *Grains of Voices* was performed at the United Nations in New York on United Nations Day. His music has been released on numerous albums and compilations, and in 1998 he became a member of The Swedish Royal Academy of Music.

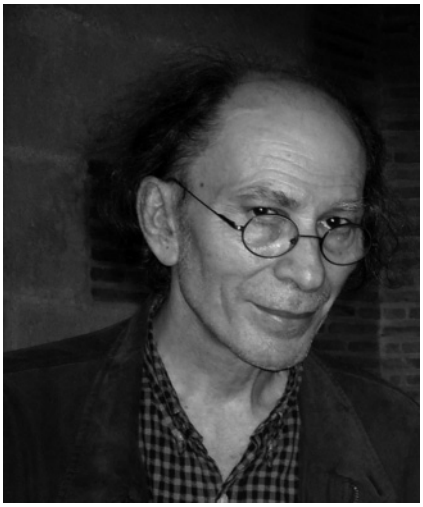
The last years have seen Parmerud working as a sound and software designer for interactive audiovisual installations. His installations *The Fire Inside*, *The Living Room*, and *Lost Angel* have been shown in cities from Berlin and Reykjavik to Mexico City. He has also designed concerts and been artistic director for large indoor and outdoor audiovisual events.

Parmerud's most recent stage work, *Metamorphos*, was developed together with Canadian dance choreographer Mireille Leblanc, who also choreographed the interactive sound-and-video installation *Lost Angel* and the dance performance *The Seventh Sense*. He recently formed the company AudioTechture with Olle Niklasson, a company that specializes in acoustic interior design for diverse environments from private houses to public spaces. AudioTechture received the Red Dot design award in 2015.

Arches (2013)—Horacio Vaggione

Horacio Vaggione describes his electroacoustic music compositions as being made of myriads of sounds of diverse sizes, covering a variety of temporal scales. These sounds circulate and interact within a network containing diverse kinds of representations encapsulated as digital objects, or codes. Because of this, there is an interplay of correspondences and recollections, with mirrors that closely or distantly reflect and may be more-or-less linear or distorting. The network itself is defined and redefined constantly throughout the compositional process. Many of the composed sounds are essentially dependent on conditions and operations performed at microscopic time scales, belonging to the domain of "microtime." But working in the microtime domain does not mean opting solely for a rough, bottom–up approach: The opposite strategy is also constantly present, regardless of any linear ordering, conforming to diverse morphological perspectives and contexts. So the musical work is the result of many operations of fragmentation and agglutination, realized at many different time scales.

Figure 5. Horacio Vaggione.



In "Arches," the materials from which the piece was built were picked up from a collection of sounds recorded by Folkmar Hein using a variety of different objects found in his home in Berlin. Extensive windowing, both temporal and spectral, was performed on the sounds, resulting in a palette of fleeting figures that were later arranged into a multitrack composition.

The piece, commissioned by Folkmar Hein and dedicated to him on the occasion of his 70th birthday, was composed in 2013 at the Brussels Musiques et Recherches Studio in Ohain, Belgium.

Track Duration: 10:17

Horacio Vaggione, born 1943 in Córdoba, Argentina, is a composer of instrumental and electroacoustic music who specializes in granular synthesis, digital micromontage, and multiscale composition, and whose pieces often are scored for live performers and computer-generated tape or for live electronics. He studied composition at the National University in Córdoba and the University of Illinois, where he first gained exposure and access to computers. He also studied at the University of Paris, where he received a doctorate in musicology in 1982.

From 1969 to 1973 Vaggione lived in Madrid, where he was a member of the live-electronics group ALEA and cofounded, with Luis de Pablo, an electronic studio and the project Music and Computer at the University of Madrid. In 1978 he moved to France and began work with the Groupe de Musique Électroacoustique de Bourges (GMEB); at the Institut National Audiovisuel, Groupe de Recherches Musicales (INA-GRM); and at IRCAM. From 1987 to 1988 he was a guest of the DAAD Artists-in-Berlin program and worked in the Electronic Studio at the TUB.

Since 1989 he worked as professor of music at the University of Paris VIII and as director of the Centre de Recherche Informatique et Création Musicale. Since 2012 he continues to serve at that university as emeritus professor.

Memories of Madrid (2005) and *Dithyramb-Kepler 63c* (2014)—Trevor Wishart

"Memories of Madrid" was part of a larger project, *Itinerarios del Sonidos*, staged in 2005, which aimed to install audio works in bus shelters around the Madrid city center. Wishart traveled to Madrid in May of that year to collect audio recordings of the city environment and peoples' voices in the streets. Recordings included street vendors of various kinds and the rattling of buses as they proceeded around the city. The materials were variously abstracted and transformed, using the software Composer's Desktop Project (CDP). One particular process developed for this piece was the rhythmization of vocal material over space, using two identical streams on left and right channels, followed by randomly deleting units either on the left, the right, or both channels, thereby producing an unpredictable, spatialized mix.

The selected bus shelters had an audio output socket installed, so that travelers with headphones could plug them into the socket and hear what was being played. On the positive side, this meant that travelers who did not want to hear the sounds did not have it imposed on them from an installed loudspeaker system. The disadvantage was that headset users had to be enticed out of their own sonic universe to listen to something different.

Together with Luc Ferrari, Wishart selected one of the quieter of the bus stops to present the work, since many were on routes with heavy traffic.

Additional Notes from a Letter, June 2018

"Memories of Madrid" was made entirely in the Sound Loom environment, an interface to CDP. This included the final mixing. I say this because lots of people ask me about "postproduction." There is no postproduction. Pieces are constructed in a series of mixing stages, going from the smallest time scale (making complex sound events from simpler ones), through gestures (mixes of these sound events), to phrases (mixes of gestures), to sections (mixes of phrases), to the whole piece (a mix of sections).

At all stages the outputs may be processed, using programs from CDP, before being reused. Most importantly, it is possible to revisit the material (using Sound Loom's History function) and re-create it with altered time proportions, whenever this proves necessary for the overall formal balance of the piece.

Processes involving sonic transformation of materials are often sequentially overlaid. That is, given a sound "a"

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a.............................a
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Process 1 (gradually change a to state b, somewhere after the start of a)

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a..a -->> b...................b
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Process 2 (gradually change the b-end of the original sound to c)

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a..a~to~b..b---->>c...........c
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Process 3 (gradually change the c-end of original sound to d)

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a..a~to~b..b~~to~c..c-->> d..d
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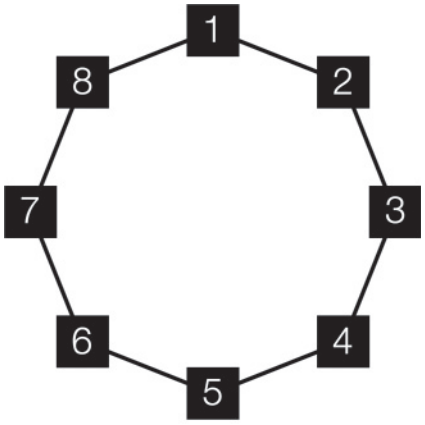
etc.

Finally, phrases and sections are usually constructed by weaving together two or three evolving streams of sound, each with its own sonic and spatial characteristics, and these streams may interact—events in one stream appear to trigger events or shifts in another stream.

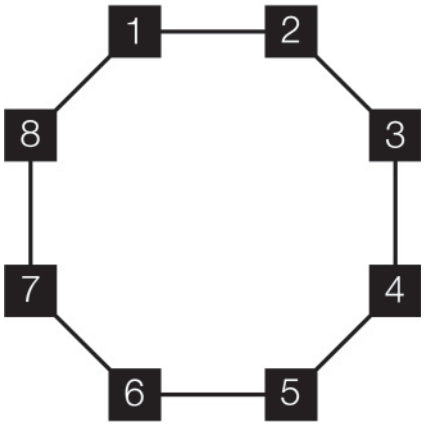
"Dithyramb-Kepler 63c" is one of three pieces forming the suite *The Secret Resonance of Things*, which celebrates, in musical form, our scientific understanding of the world. The musical material of each movement is derived from scientific data or physical models of the world, but each is approached in a different way. The piece is the fruit of a research project at the University of Oxford, funded by the Leverhulme Trust.

Kepler 63c is one of a recently discovered class of earthlike planets. If we were to make landfall on such a planet, we know that the laws of physics would be the same and, if we could survive there without extensive technological support, the properties of the atmosphere would have to be similar to those on Earth. So music that we can hear and appreciate might well exist on this distant world—but we have no way to predict details of the technical culture or the aesthetic world in which it would have emerged. "Dithyramb-Kepler 62e"

Figure 6. Possible loudspeaker configurations for Trevor Wishart's "Dithyramb-Kepler 63c."



(a)



(b)

attempts to conjure such an alien music using imaginary, yet physically possible, brass and percussion instruments and imaginative extensions of these instruments.

The instruments were created using physical-modeling software developed by the Next Generation Sound Synthesis (NESS) research project at the University of Edinburgh, funded by the European Research Council, and extended using processes in CDP.

This is an eight-channel piece, supplied as eight individual, monophonic sound files. Import these files to a multichannel playback platform such as ProTools or Audacity, with each single file going to a different output channel, thereby forming the complete eight-channel output.

Figure 7. Trevor Wishart.

1. Loudspeakers should form an octagon surrounding the audience (this may be stretched longer in the front–back direction, if necessary).
2. The array of loudspeakers may have either one loudspeaker at front center (double-diamond format) or two loudspeakers at the front (octagonal format).
3. Loudspeakers are numbered clockwise, with loudspeaker 1 being at front center (as in Figure 6a) or front left (Figure 6b).
4. Channel 1 goes to loudspeaker 1, Channel 2 to loudspeaker 2, and so on.

Born in 1946, **Trevor Wishart** is a composer and performer from the north of England specializing in sound metamorphosis and in the construction of software to make it possible (Sound Loom, Composer's Desktop Project). He has lived and worked as composer-in-residence in Australia, Canada, Germany, Holland, Sweden, and the USA.

Wishart creates music with his own voice, for professional groups, or in imaginary worlds conjured up in

Figure 8. Folkmar Hein.

the studio. His aesthetic and technical ideas are described in the books *On Sonic Art*, *Audible Design*, and *Sound Composition*, and he is a principal author of the CDP sound-processing software. His most well-known works include *Vox Cycle*, *Red Bird*, *Tongues of Fire*, *Two Women*, and *Globalalia*, and pieces have been commissioned by the Paris Biennale, the BBC Proms, and many other organizations. In 2008 he was awarded the Giga-Herz Grand Prize for Life Achievement. From 2006 to 2010 he was composer-in-residence in the northeast of England, based at Durham University, during which time he created the sound-surround opera *Encounters in the Republic of Heaven*. During 2011, while artist-in-residence at the University of Oxford, he began work on the project *The Secret Resonance of Things*, transforming astronomical and mathematical data into musical material. He has also been involved in community, environmental, and educational projects, and his *Sounds Fun* books of musical games was has been published both in English and in Japanese.

About the Curator

Folkmar Hein was born in 1944 and grew up in Westphalia in the northwest of Germany. He studied electrical engineering at the TUB, graduating with a major in technical acoustics. He also received a Tonmeister diploma from the Hochschule für Musik Berlin with a major in cello. Starting in 1974 he worked as a research assistant at the TUB, where he was director of the university's Electronic Studio. At the time of this writing, he has realized 120 electroacoustic works for numerous composers. In 1982, working with the DAAD Artists-in-Berlin program, he initiated the festival Inventionen, with a program emphasizing electroacoustic music and sonic art. He is an active promoter of projects and public presentations both in Berlin and throughout Europe. From 1991 to 1998 he was chairman of the German Society for Electroacoustic Music (DEGEM). In March 2009 he retired from the TUB, and in the summer of 2010 he was awarded the "Prize of Honor" for his life's work by the Deutscher Klangkunstpreis and was named an honorary member of DEGEM.