

John Pierce (1910–2002)

John Robinson Pierce, a celebrated electrical engineer who oversaw and promoted seminal research in computer music, passed away in Sunnyvale, California on 2 April 2002, at age 92. He died of complications from pneumonia, having been in declining health for a number of years. Historians will undoubtedly consider his most significant impact on computer music to be his encouragement of Max Mathews's pioneering but unofficial work on digital music synthesis at Bell Telephone Laboratories, where Mr. Pierce was an executive director. However, Mr. Pierce himself made numerous contributions to the field, including authoring a popular book on musical acoustics (with a slant toward computer music) and conducting or co-authoring various experiments in musical acoustics and psychoacoustics.

John Pierce is best known for his extramusical accomplishments. He coined the term "transistor" for the device invented by his colleagues at Bell Labs, and he laid the basis for the first telecommunications satellites. His publications and leadership resulted in Echo I, a 100-foot balloon satellite launched by the National Aeronautics and Space Administration (NASA) in 1960. Its success led to the launching in 1962 of the first commercial telecommunications satellite, Telstar I, built by a team John Pierce directed at Bell Labs. He also improved traveling-wave tubes (see Figure 1), invented the Pierce electron gun (a vacuum tube used in satellites and linear accelerators), and co-developed the low-voltage reflex klystron oscillator, which is used in radar receivers.

An avid writer, he published numerous technical books, in addition to science-fiction stories mostly written under the pseudonym

J. J. Coupling. He authored or co-authored at least 20 books and over 300 papers, and more than 90 patents were issued in his name. His most important books related to music are his text *The Science of Musical Sound* (Scientific American Books, 1983; reissued in paperback by W. H. Freeman and Co., 1992) and the anthology *Current Directions in Computer Music Research* (co-edited with Max Mathews, MIT Press, 1991).

Born 27 March 1910 in Iowa, John Pierce grew up in California and received his PhD in electrical engineering from California Institute of Technology (CalTech) in 1936, after which he worked at Bell Labs until 1971. He was then a professor of engineering at CalTech and worked at the Jet Propulsion Laboratory. In the 1980s, Mr. Pierce and Mr. Mathews were invited to join the faculty at Stanford University's Center for Computer Research in Music and Acoustics (CCRMA), directed by John Chowning. Mr. Pierce was given the unusual title of Visiting Professor of Music, Emeritus.

Besides promoting Max Mathews's research at Bell Labs, John Pierce influenced many others in the field. The distinguished engineer Carver Mead took up computer music research for a period after Mr. Pierce introduced him to the area. And it was John Pierce who, on learning about Mr. Chowning's FM sound-synthesis algorithm, succinctly issued two words of advice to him that ultimately affected the music industry: "Patent it!" Mr. Pierce also helped Stanford University win a large grant from the Systems Development Foundation to support the work at CCRMA.

Although John Pierce was by no means a composer (having what he referred to as "an unreciprocated love of music"), he experimented with creating some pieces of music

to illustrate theoretical principles. In 1949, inspired by Claude Shannon's work on information theory, Mr. Pierce and his assistant at Bell Labs, Elizabeth Moorer, composed three short hymn-like pieces using specially made dice and a random-number table. Later, he generated some musical examples using sound synthesis at Bell Labs: *Stochata* (1959), *Variations in Timbre and Attack* (1961), *Sea Sounds* (1963), and *Eight-Tone Canon* (1966). These synthesized pieces were published on the compact disc *Computer Music Currents 13* (Wergo WE152-3, available from www.cdemusic.org). (Decca issued two earlier recordings on vinyl: "Music from Mathematics" and "The Voice of the Computer," which included Mr. Pierce's work.)

In his later years, he was particularly interested in what he eventually termed "the Bohlen-Pierce scale" (after learning of its earlier description by Heinz Bohlen): a division of the frequency ratio 3:1 into 13 equal parts, modeled after traditional equal temperament's division of the 2:1 octave into 12 equal parts. The system includes a subset, analogous to the traditional diatonic scale, and a "triad" that approximates within 7 cents the frequency ratios 3:5:7 (whereas the traditional major triad approximates 4:5:6). Mr. Pierce was intrigued by the notion that music built on such scales could exhibit consonance and dissonance analogous to those of traditional music, and that the 3:1 ratio could even be perceived as an identity relationship in place of the traditional octave. Owing substantially to his and Max Mathews's influence, computer music composers such as Jon Appleton, Richard Boulanger, Curtis Roads, Georg Hajdu, and Juan Reyes have employed the Bohlen-Pierce scale. Mr. Pierce himself wrote one or two short studies in the scale.

Figure 1. John Pierce displaying a traveling-wave tube.



John Pierce's interest in pitch also led him to learn that the psycho-acoustician Harvey Fletcher had apparently understood the phenomenon of the "missing fundamental" slightly earlier than J. F. Schouten, to whom its discovery has often been attributed. Mr. Pierce's musical research interests were not limited to pitch, however; for example, he co-authored papers on physical modeling with Julius Smith and Scott Van Duyne.

Mr. Pierce is survived by his wife Brenda Woodard Pierce, his son John J. Pierce, and his daughter Elizabeth Anne Pierce. An afternoon of remembrance was held 3 May 2002 at Stanford University, including a concert of music by John Pierce, Richard Boulanger, Edgard Varèse, and Julius Benedict.

[Editor's note: This obituary was written by Douglas Keislar, who remembers with appreciation both John Pierce's intellectual enthusiasm and his advice as a member of the Editor's PhD thesis committee. Additional information about Mr. Pierce can be found in Vol. 15, No. 4 of *Computer Music Journal*; in his

autobiography *My Career as an Engineer*, written in connection with his being awarded the Japan Prize; and in the lengthy 1992 interview by Andrew Goldstein, available at www.ieee.org/organizations/history_center/oral_histories/transcripts/pierce.html. This obituary's mention of the 1949 stochastic compositions derives from information in Marcia Bauman's dissertation from the Eastman School of Music on the music research at Bell Labs, a document based partly on her unpublished interview with Mr. Pierce.]

Bourges 2002

Prizewinners of the 29th Bourges international electroacoustic music and sonic art competition were announced during the Bourges Synthèse festival in May 2002.

Residence prizes were awarded to Ondrej Adamek (Czech Republic) for *Un souffle, une ombre, un rien*; Francesco Biasiol (Italy) for *Ne pas se pencher au dehors*; Thomas Cahill-Jones (UK) for *DeLeTE 'e' UNIT*; Peter Gilbert (USA) for *Rituals*; Nikos Stavropoulos (Greece) for *Scene II*; and Ana Gabriela Yaya Aguilar (Argentina) for *Patio*.

In Trivium A, in the category of electroacoustic music without instruments, prizes were awarded to David Berezan (Canada) for *Baoding* and to Jon Christopher Nelson (USA) for *Scotter*. Mentions were made of *REcoil* by Jens Hedman (Sweden) and *Lascivia Pristina II* by Juan-Manuel Marrero (Spain). In the category of electroacoustic music with instruments prizes were awarded to *To walk the night*, for flute, percussion, piano, violin, cello, and tape, by

Marco Marinoni (Italy) and to *Labyrinth*, for string quartet and tape, by Joao Pedro Oliveira (Portugal). Mentions were made of Roderik de Man (Netherlands) for *Magnetic fields*, for orchestra and tape, and of Mario Mary (Argentina) for *Aarhus*, for violin and tape. In the category of electroacoustic sonic art, the prize was awarded to Eric la Casa (France) for *Vibratility Mozaik* and mention was made of Frank Niehusmann (Germany) for *Untertagemusik nr.1*.

In Trivium B, the mention for a work for dance or theatre went to Todor Todoroff (Belgium) for *In Between*. The prize for installation work was awarded to *Staccato Death Life* by Ralf Nuhn (Germany) with mentions of Simone Simons and Peter Bosch (Netherlands) for *Cantan un Huero*. The multimedia prize was won by Marcelle Deschènes (Canada) with *Die Dyer* (video by Alain Pelletier) with mentions being made of Pascal Baltazar (France) for *Soma* and Elsa Justel (Argentina) for *Destellos*. The Magisterium prize was awarded to Ricardo Mandolini (Italy/Argentina) for his piece *La noche en que los peces flotarón*.

The Bourges Synthèse festival, in its 32nd year, also celebrated the 30th anniversary of the collaborative work "The Seasons" created by Jorge Arriagada, Françoise Barrière, Christian Clozier, Lorenzo Ferrero, Beatriz Ferreyra, Dieter Kaufmann, Peter Kolman, Alain Savouret, Luis Maria Serra, and Elzbieta Sikora in 1972. All composers who wished to participate were invited to create a short piece based on just one of the seasons. Both the 1972 works and the new 2002 pieces were performed during the festival. Details of the festival can be found on the Web at www.imeb.asso.fr/english/Sommaire/index2.html.

Prix Noroit 2002

The finals concert of the Prix Noroit international composition competition took place on 27 April 2002 in Arras, France, and Natasha Barrett (England/Norway) won both the first prize and the people's prize. From the 73 entries submitted, 6 were selected for the finals: Natasha Barrett's *Angels and Devils*; *Response*, by Panayotis Kokoras (Greece/England); *Funus*, by Andrea Agostini (Italy); *Ante Litteram*, by Giochino Palma (Italy); *Rous*, by Loufopoulos Apostolos (Greece/England); and *HG 80*, by Dimitri Coppe (Belgium). Although they were not selected for the final competition, Jon Aveyard's *Depth Perception* and Mario Lorenzo's *Erre* received mentions.

Prix Ars Electronica 2002

The winners of the Prix Ars Electronica 2002 included artists from the USA, Japan, France, Sweden, the United Kingdom, Australia, Canada, India, and Austria. In the category of Digital Musics, the Golden Nica was awarded to Yasunao Tone for *Man'Yo Wounded*. Awards of Distinction were made to Alejandra Salinas and Aeron Bergman (Lucky Kitchen) for *Revisionland/The Tale of Pip*, and to Curtis Roads for *Point, Line, Cloud*. The awards presentation is scheduled to take place during the Ars Electronica Festival on 9 September 2002 and, during the following 3-day artists' forum, the prize winners (Golden Nica and Awards of Distinction) are scheduled to present their works in public. Information about the Prix Ars Electronica is available by visiting the competition's Web site prixars.aec.at.

Música Viva 2002

The results of the third Música Viva electroacoustic composition competition were announced during the Música Viva festival in Lisbon, Portugal, in April 2002. The competition winners were *Response* by Panayiotis Kokoras (Greece) and *Conversation* by Ian Corbett (USA). Mentions were made of *Opposizione Intermedia* by Debora Mameli (Italy), *Deepfield* by Mathew Adkins (UK), and *Percurso I* by Olga Pereira (Portugal). Formal encouragement was offered to Georges Forget (Canada) for *Dieu est un ingrât* and to José Prendas (Portugal) for *A aparente ilusão by um som*. The international jury was Henri Pousseur (Belgium), James Dashow (USA), and Miguel Azguime (Portugal).

The eighth Música Viva festival extended over eight days at the end of March 2002 and presented a wide-ranging program of events focusing on Portuguese composers and electroacoustic composition presented on a multi-speaker diffusion system. The guest composers Henri Pousseur, James Dashow, and Claude Ledoux each gave lectures and James Dashow also led composition masterclasses. Workshops on sound projection were given by Pedro Rebelo and Miguel Azguime and there were courses available on OpenMusic, Nato 0.55, and Supercollider. Nine concerts included performances by the Remix Ensemble and L'autre-Trio, solo concerts of music by Henri Pousseur and James Dashow, concerts for piano and live electronics (Ana Telles) and cello and live electronics (Arne Deforce), and concerts featuring national studios and organizations (EMS-Stockholm, Sweden, and the Sonic Arts Network, UK). The full program is available online (www.misomusic.com/mv02proge.html) as part of the festival's Web pages: www.misomusic.com/mviva.html.

Concert Series in Paris Features Several World Premieres

The 2001–2002 cycle of concerts held at the University of Paris 8 between November 2001 and May 2002 presented a wide variety of new computer music for tape alone and for instruments with electronics and computer processing, including several world premieres. The season opened in November 2001 with music by Mathew Adkins (UK), Massimo Graziato (Italy), Antonio Ferreira (Portugal), Pascal Gaigne (France), José Manuel López López (Spain), and María Eugenia Luc (Argentina). The January concert offered pieces by Andrew Lewis (UK), Manuel Rocha-Iturbide (Mexico), Edson S. Zampronha (Brazil), Numo Miguel Fernandes Leal (Portugal), Carlos Graetzer (Argentina), and Mario Marcelo Mary (Argentina). In March, music by Arturo Gervasoni (Italy/Argentina), Diego Garro (Italy), João Pedro Oliveira (Portugal), Horacio Vaggione (France/Argentina), and Ed Bennett (Ireland) was presented. The series ended in May with a performance of Karlheinz Stockhausen's Helicopter-Quartet, followed by pieces by Cort Lippe (USA), Elsa Justel (Argentina) Takayuki Rai (Japan) Lars Graugaard (Denmark), and Massimo Carlentini (Italy). After the final concert of the Paris 8 series, a two-day colloquium was held, entitled "Ways of Making Sound," hosted by the University Paris 8 and the International College of Philosophy, and organized by Antonia Soulez and Horacio Vaggione.

Cinema for the Ear in Denmark, Spring 2002

During March and April 2002, spatial sonic art was celebrated at the cinema "East of Eden" in Aarhus, Denmark. Four evenings were devoted to electroacoustic music new and old from around the world. In the first concert, Paul Lanksy presented music by Katharine Norman (*Anything from the minibar?* and *You need a cab?*), Paul Koonce (*Breath and the Machine*), Ted Coffey (*Zap*), Reuben de Lautour (*Planetarium*), Tae Hong Park (*Aboji*) and Colby Leider (*Hydroaulis*), along with his own *Pattern's Patterns*. The second concert was curated by Denis Smalley, who played his *Wind Chimes* and pieces by Apostolis Loufopoulos (*Rous*), Robert Normandeau (*Malina*), Jens Hedman / Paulina Sundin (*Reflections*), and Aliocha Van der Avoort (*Anisotrope*). The third concert was curated by Jakob Goetz whose selection of music was taken from recent CD releases. The final concert was advertised as a classical concert and presented a wide survey of early electroacoustic music and musique concrète. Karlheinz Stockhausen's *Gesang der Jünglinge* (1956) was followed by Iannis Xenakis's *Concret PH* (1958), Pierre Schaeffer's *Etude pathétique* (1948), and Else Marie Pade's *Glasperlespil II* (1958). After the interval, John Cage's 1939 *Imaginary Landscapes* was followed by music by György Ligeti (*Glissandi*, 1957), and Edgar Varèse's 1957–58 *Poème électronique* was followed by *Come Out* by Steve Reich, from 1966. The Cinema for the Ear concert series is presented by the Danish Institute of Electroacoustic Music (DIEM) in Aarhus, Denmark. More information can be found on the DIEM Web pages at www.daimi.aau.dk/~diem/.

SEAMUS Conference 2002 "Intersections in Sound"

The national conference of the Society for Electro-Acoustic Music in the United States (SEAMUS), "Intersections in Sound," was held 4–6 April 2002 at the University of Iowa in Iowa City, Iowa, USA. Concerts and research sessions explored intersections between aesthetic approaches, compositional media, historical and developing technologies, and electroacoustic composition and performance. The conference chair was Lawrence Fritts. Annually at the conference, a SEAMUS Lifetime Achievement Award is presented. The 2002 award was made to Don Buchla, who discussed his recent research and performed in a concert featuring early and recent works on original instruments and new controllers. The guest composer was Denis Smalley, who presented his work *Base Metals* and participated in a panel discussion comparing recent aesthetics and approaches to electroacoustic composition of European and American composers. Twelve concerts of electroacoustic works for tape, live electronics, video, instruments, voice, and dance were presented alongside paper sessions, curated presentations, and three discussion panels. A full list of pieces and papers presented can be found on the conference's Web pages at seamus2002.music.uiowa.edu/.

Festival "Rien à voir" in Montreal

The eleventh Rien à voir (Nothing to See) festival took place in Montreal, Canada, 10–14 April 2002, and pre-

sented six concerts. The first event, titled Rien pour rien (Nothing for nothing), comprised six half-hour "mini-concerts" in the presence of the festival's guest composers. Stephan Dunkelman presented *Metarcana* and *Rituellipses*; Bernard Parmegiani presented *Litaniques* and *Le Présent composé*; Jonty Harrison presented *Streams* and *Splintering*; and Ingrid Drese presented *Amaryllis* and *Horloge à feu*. A soirée of experimental electronics presented the performers Camp, Komsomolsk, and the duo Cal Crawford and Alexandre St-Onge. The third concert was hosted by Ingrid Drese and Stephan Dunkelman under the title Silences and Colors/Rhizomes. Ingrid Drese presented her pieces *Horloge à feu*, *Amaryllis*, *Papillon*, *abîme*, *nuit*, and *Tout autant* with Étienne Leclercq. Stephan Dunkelman presented *Metarcana*, *Rituellipses*, *Hanna's Duet*, *Dreamlike Shudder in an Airstream Part 1: for a crumpled woman*, *Aquaéra 1. Signatures*, and *Thru, Above and Between*.

Concert four was given by Jonty Harrison under the title Up Close and Personal, in which he presented *Concreta* by Aquiles Pantaleão, *The Tincture of Physical Things* by Alistair MacDonald, *MachineWerks* by Michael Thompson, and four pieces of his own: *Surface Tension*, *Sorties*, *Streams*, and *Splintering*. Concert five was devoted to works by young composers: Nicolas Orton, Olivier Bélanger, Paul Williams, Jean-Michel Robert, Jean-Sébastien Durocher, and Jean-François Dessureault. The final concert, Memory and Time, was devoted mostly to the music of Bernard Parmegiani. His *Le Présent composé*, *Capture éphémère*, *Litaniques*, *Sons/Jeux*, and *La mémoire des sons* were preceded by *Été (tiré de 12 Haïku)* by Bernard Fort, and *Annam* by François Donato.

Sound Installations in New York in April 2002

The Diapason Gallery, New York, New York, USA, hosted a series of Saturday evening sound installations through April 2002. The first evening presented two installations: *Dust Theories* by Kim Cascone, using Max/MSP, and *Room Piece*, a sound installation with laser lights by Diapason co-founder Michael J. Schumacher, comprising rhythmic events derived from a number series and a fragment of sampled gong sound. The rest of the month was devoted to *An Outgoing Message* by Ron Kuivila which explored emotional responses to concepts of waiting and responding to commands. *Outgoing Message* uses forty telephones and eight channels of synthesized sound to explore the transition zone between sounds and commands.

Stage Premiere of Online Opera in Munich

The stage version of *Orpheus Crystal*, an opera in two media by Manfred Stahnke, received its world premiere on 3 May 2002 within the framework of the 8th Munich Biennale. *Orpheus Crystal—Opera in Two Media* combines new media and innovative technologies with the traditional art form of the opera to create a new reading of musical theater. The two-part work, which consists of a stage version and a version for the Internet, views the ancient myth of Orpheus from a perspective which relates to the contemporary era. The project was developed by a team of artists including Georg Hajdu, Simone de Mello, Peter Staatsmann, Manfred Stahnke, Bettina Wackernagel, and Bettina Westerheide.

The Internet version, www.orpheuskristall.net, has been online since October 2001. As a work-in-progress, it represented phases in the process of conceiving the stage version. For its visual appearance, Berlin-based Web designer Bettina Westerheide created her own multimedia world from material that was worked out in collaboration with the team of artists. The enigmatic starting page is the entrance into the world of Orpheus, which is presented online as a searching, immersive game. The viewer is drawn into an interactive cosmos: musical fragments, excerpts from the libretto, and mystical worlds of imagery lead the user through the system.

The world premiere of the stage version retained and extended its links with its online development. The opera took the form of an interaction between actors on stage and musicians situated elsewhere. Computer musician Georg Hajdu used the newly developed Quintet.net software for the stage version: Orpheus's singing and the actions of the on-stage percussionist were encoded, transmitted via the Internet to other musicians in Amsterdam, New York, and San Francisco. They heard the music and also received it in notated form in real time, enabling them to respond immediately to the arriving sonic and visual information. Their improvisations were similarly encoded and transmitted to become a visible and audible component of the live performance in Munich. The online version is still available at the Web address www.orpheuskristall.net.

Altermedium Festival at the Theremin Center, Russia

The second Altermedium International Festival took place in Moscow, Russia, in May 2002. The Altermedium festival, founded in 2001, is a development of the electroacoustic music programs produced since 1994 by the Theremin Center, within the Alternativa New Music Festival in Moscow. The Festival takes as its subject the art of sound and it focuses on electroacoustic music, with a particular interest in live interactive forms of computer music and multimedia, especially the interactions of sound, image, and dance. The theme of Altermedium.02 was "Well Tempered Noise," intended as a continuation of the traditions which had their roots in the ideas of Russian and Italian Futurists of the beginning of the 20th century. The festival was also dedicated to the tenth anniversary of the Theremin Center, founded in May 1992.

Concerts were held each evening. The 15 May concert presented *Sheremetievo Airport Rock* by Jon Appleton (USA), *Mind Feedbacks 2.0*, for theremin, guitar, voice, and live computer processing, by Dmitry Subochev (Theremin Center), *OHNE*, for voices and electronics, by Dave Phillips (Switzerland), *rm 74* by Reto Maeder (Switzerland), and *Tochnit Aleph Empire* by Daniel Loewenbrueck (Switzerland). The 16 May concert featured multimedia pieces. *b-i-r-d-r-e-a-m*, for Kyma system and theremin, by Yuri Spitsin (Theremin Center) was followed by *Die grosse partitur* by Sepo Gruendler and Elisabeth Schimana, with graphic design by Elisabeth Kopf (Austria), and a performance-installation *Alien City* by Alien productions, of Austria (Martin Breindl, Norbert Math, and Andrea Sodomka). On 17 May, the

Theremin Center was represented by *Soma* by Vera Ivanova and *Correlations 1.0*, for two performers, theremin sensors, and MAX/MSP based interactive system, by Andrei Smirnov. The work of the Studio for Electro-Instrumental Music (STEIM) in Amsterdam was then represented by a solo live electronics performances by Daniel Schorno (Netherlands) and Netochka Nezvanova (New Zealand), followed by *Spring: Still Unfurled*, for voice and live electronics by Netochka Nezvanova and an interactive video design by Hans Christian Giljes (Norway).

Throughout the festival there was an installation of a laser-to-sound sculpture by Rob Mullender (UK) and a retrospective of video works by Sergei Kossenko, the ZORCH Group, Olga Teksheva, Jana Aksenova, Natasha Borisova, the FUGK Group, Olga Kumeger, and Yuka Lukicheva. The Altermedium Festival was directed by Andrei Smirnov.

NIME 2002 Held at MediaLab Europe in Dublin

The International Conference on New Interfaces for Musical Expression (NIME) took place at MediaLab Europe, Dublin, Ireland, 24–26 May 2002. The conference explored the new directions that musical interfaces are taking, addressing current research and evolving issues through presented papers, discussions, and performances with academics, technologists, and artists working at the cutting edge. The conference opened with a welcome from Rudy Berger, a keynote address by Tod Machover, and the first concert. On the Saturday, there were four paper sessions under the headings Sensate Surfaces, Haptic Feedback, Body Electric, and (Un)Traditional Instruments. The

day ended with a keynote address by Cillian O'Briain and the second concert. Sunday offered three more paper sessions: Tools and Teaching, Novel Controllers, and Content Mapping, before the closing keynote address by Joel Chadabe, closing remarks from Joe Paradiso and Marcelo Wanderley, and an open discussion on the organization of NIME-03.

In all, 17 papers were presented by researchers from Belgium, Canada, France, Ireland, Italy, Spain, and the USA. There were also 20 demonstrations of new systems and interfaces for performance, allowing participants to explore the practical as well as the theoretical aspects of the conference theme. The full proceedings of NIME-02 are available in searchable form on the conference's Web pages at seamonkey.mle.ie/nime/. These pages can also be accessed from the general NIME address: www.nime.org.

JIM 2002 Held in Marseille

The Journées d'Informatique Musicale (JIM) are held each year at a research institute in France. The ninth JIM was hosted by the Centre National de Création Musicale (GMEM) in Marseille, 29–31 May 2002, with a special focus on sound synthesis. JIM encourages wide-ranging discussion, and papers, posters, and demonstrations were invited on the themes of formalization and representation of musical structures; formalization and modeling of musical knowledge; languages and environments to assist composition; systems for composition and automated arrangement; tools for music analysis; editing and publishing systems; optical score recognition; modeling and simulation of musical interpretation and performance; sound synthesis systems; in-

strument modeling; signal processing; sound spatialization; room acoustics; systems for interactive performance; recognition of musical parameters; information archiving and transfer, sound and music perception modeling; real-time information processing; and general institutional research reports. In all, 30 papers were presented over the 3 days of the symposium. A full list of papers can be found on the Web by visiting the JIM 2002 pages at www.gmem.org/Jim2002.html.

Acoustical Society of America Meeting, Summer 2002

The Acoustical Society of America met in Pittsburgh, Pennsylvania, USA, 3–7 June 2002 and its program included several sessions related to musical issues which all contained invited papers. The session "Naturalness in Synthesized Speech and Music" was chaired by Sten Ternstrom and included papers by Ingo Titze, Hideki Kawahara, Roger Dannenberg, and Xavier Serra. The session devoted to Interactive Computer Music Systems was chaired by Roger Dannenberg and featured papers by Joel Chadabe, David Wessel, George Tambouratzis, Robert Rowe, Christopher Raphael, and Masataka Goto. James Beauchamp chaired "Music Recognition Systems" which was split over two sessions and included heard the work of Roy Patterson, Alain de Cheveigné, Barry Jacobson, Tuomas Virtanen and Anssi Klapuri, Ichiro Fujinaga, Jean Laroche, Jürgen Herre, Judith Brown, Mark Kahrs, and Neil Todd. Information about the Acoustical Society of America and its meetings is available on the Web by visiting asa.aip.org.

DIEM Presents MIX.02 in Denmark in June 2002

The Danish Institute of Electro-acoustic Music (DIEM) organized the second MIX festival, 13–16 June 2002 in Aarhus, Denmark, around a number of themes, including a focus on the film *Forbidden Planet* which was screened each day of the festival. Concerts featured works for ensemble and electronics, performed by The California EAR Unit (USA), Osatura (Italy), and Contemporanea (Denmark). Guest composers included Denis Smalley, Adrian Moore, Amy Knoles, and Takayuki Rai. The festival also included acoustic concerts and a sound diffusion workshop on DIEM's 16-channel loudspeaker array, computer music videos from around the world, and DJ's remixing Bebe and Louis Baron's soundtrack from *Forbidden Planet* and the music of other pioneers of electronic music, including Else Marie Pade. Remixing brought the festival to a close in a six-hour electronic music marathon in the park near the Moesgård Museum, where four classic DIEM works from its 15-year history were re-presented. More information is available by visiting DIEM's Web site www.diem.dk.

Audio Engineering Society Meet in Helsinki

The 22nd Audio Engineering Society (AES) International Conference on Virtual, Synthetic, and Entertainment Audio was held at the Helsinki University of Technology, Espoo,

Finland, 15–17 June 2002. The three-day conference brought together researchers and developers in the field of virtual and synthetic audio, as well as entertainment audio technologies and applications. Sessions were held on Virtual and Augmented Reality, Sound Synthesis, 3-D Audio Technologies, Audio Coding Techniques, Physical Modeling, Subjective and Objective Evaluation, and Computational Auditory Scene Analysis.

In addition to the eleven paper sessions and an extensive demonstration and poster session, there were four invited papers. Jens Blauert, a pioneer in spatial hearing research, gave a presentation on instrumental analysis and synthesis of auditory scenes. Peter Svensson and Ulf Kristiansen were invited to speak on computational modeling and simulation of acoustic spaces. Xavier Rodet discussed the present state and future challenges of synthesis and processing of the singing voice, and Jürgen Herre presented audio coding: an all-round entertainment technology. The Co-Chairs of the conference were Nick Zacharov and Jyri Huopaniemi. More information on the AES meeting can be found by visiting the conference Web site at www.acoustics.hut.fi/aes22/. The titles of all the papers presented are also available at www.acoustics.hut.fi/aes22/papers/.

Pauline Oliveros Celebration

"Sounding the Margins," a 40-year retrospective of the work of Pauline Oliveros, was presented by the Me-

ridian Gallery in San Francisco, California, USA, 31 May–2 June 2002 to celebrate the composer's 70th birthday. Although the event intentionally centered around performances of works for live performers in order to involve as many participants as possible, Pauline Oliveros's significant contribution to electronic and computer music was also celebrated, with performances of several pieces for instrument and live electronics, including *Four Meditations for Orchestra*, *Red Shifts*, *What Time Is It?*, *Timeless Pulse*, *Portrait of Tom Bickley*, and *The Well and the Gentle*, and *13 changes for Malcolm Goldstein*, for three performers on computer.

Gottfried Michael Koenig Honored

Gottfried Michael Koenig, composer and electronic and computer music pioneer, has been awarded an honorary doctorate by the University of Saarbrücken, Germany, in recognition of his theoretical work in the field of modern composition theory. Gottfried Michael Koenig was born in 1926 in Magdeburg, Germany. From 1954 to 1964 he worked in the electronic music studio of West German Radio at Cologne, assisting other composers and producing his own electronic compositions. In 1964 Dr Koenig moved to the Netherlands and until 1986 he was director of the Institute of Sonology, firstly at the University of Utrecht and then at the Royal Conservatory at The Hague.