Per has won a number of awards, including first prize in the SEAMUS/ASCAP Student Commission Competition, and grand prize in the Digital Art Awards, Tokyo, Japan. In addition, he was selected as a finalist in the International Contemporary Music Contest "Città di Udine", Italy, which included a performance and recording of his string quintet Prelude: Dissent. He has also been a finalist in the SCI/ASCAP Student Commission Competition and the Pierre Schaeffer International Computer Music Competition.

Born in Greece, **Chryssie Nanou** showed an exceptional musical talent at an early age winning First Prize at the "Filonos" National Youth Competition and the European Young Soloist Competition. Pursuing her musical studies in France, she graduated from the Ecole Normale de Musique de Paris/Alfred Cortot where she studied with Germaine Mounier obtaining consecutively with the highest honors the Diplome Superieur d'Enseignement, Execution and Concertist in Piano and Chamber Music. In the USA, she obtained the Graduate Performance Diploma in Piano and Computer Music at the Peabody Conservatory.

Chryssie performs regularly in concerts and music festivals playing both the classical piano and electronic music repertory. Her recent appearances include Seamus 2005, the Dartmouth Electric Rainbow Coalition Festival, the RockHotel Piano Festival in New York, Third Practice and numerous concerts featuring new works by young composers.

For more information, visit: *www.chryssie.com*

Migrations I

Migrations I is a series of studies in harmonic and timbre evolution. The performance is live and improvisatory in character. The sound is that of a large ensemble of oscillators that migrate to various frequency locations. The resulting sound masses undulate and move among complex harmonies and timbres. Control over these swarm-like frequency movements is provided by touch sensitive surfaces that measure the positions of the fingers and the pressure they exert. This controller was built by Don Buchla. The control and sound synthesis software was written in Max/MSP by the composer. It uses an oscillator bank and Open Sound Control (OSC) from CNMAT. Many thanks to Adrian Freed and Matthew Wright for these software developments.

David Wessel was educated in mathematical statistics at the University of Illinois and in a mathematical modeling approach to experimental and theoretical psychology at Stanford where he received his PhD in 1972. Throughout his university career he maintained an active role as a practicing percussionist in the jazz avant-garde. He then began a research program in music perception and cognition and carried out a number of experiments on the perception of timbre.

His early influences in the computer music field were Lejaren Hiller with whom he studied at the University of Illinois and John Chowning with whom he studied at Stanford. He took up a research position at IRCAM in Paris in 1976. In 1980 he began running IRCAM's Pedagogy Department and in 1985 he established a new unit at IRCAM devoted to the development of musical software for personal computers. It was within this unit that Miller Puckette developed Max, known then as the Patcher. In 1986, Wessel along with Philippe Manoury began using Puckette's Patcher. While at IRCAM, Wessel worked directly with a variety of composers including Pierre Boulez, Luciano Berio, Karlheinz Stockhausen, Vinko Globokar, Roger Reynolds, Iannis Xenakis, Gerard Grisey, and Tristan Murail among others. In 1985 Wessel taught the first computer music class at the Paris Conservatory.

In the fall of 1988, Wessel joined the Music Faculty at UC Berkeley and became Director at the Center for New Music and Audio Technologies (CNMAT) which had been founded by Richard Felciano. Since that time Wessel has remained committed to the study of music perception and cognition and the composition and performance of computer music where improvisation plays a central role. He has performed in concert with wide variety of improvising composer performers including George Lewis, Steve Lacy, Roscoe Mitchell, Louis Sclavis, George Marsh, Pauline Oliveros, Thomas Buckner, Joelle Leandre, and Shafqat Ali Khan.

Digital Music Under the Stars

Jupiter

Philippe Manoury's *Jupiter* , for flute and live electronics, was realized at IRCAM and first performed by Pierre-Andre Valade in April 1987. The piece was inspired by the flutist Laurence Beauregard, who had developed a flute with fifteen switches on its keys to aid a computer in tracking its pitch quickly. (Beauregard did not live to see his invention used on stage.) Barry Vercoe invented a score following program to accompany Beauregard's flute. The combination of a flute pitch detector, with a piece of software allowing live electronic processing and synthesis to be controlled by an event stream from a live instrument, seems to have been Manoury's main inspiration in writing *Jupiter*. The director of IRCAM, Pierre Boulez, probably saw *Jupiter* as an exploratory piece that would open up possibilities for other composers hoping to write interactive pieces.

Phillipe Manoury, composer

Philippe Manoury studied composition with Michel Philippot and Ivo Malec at the Conservatoire National Supérieur de Musique de Paris, and went on to study computer-assisted composition with Pierre Barbaud. In 1978, he began teaching during his residency in Brazil at the Universidade Nacionale do Estade de Sao Paulo. A major appointment followed at the Conservatoire National Supérieur de Lyon (1986-96). Most significant is his long association with the world's leading center for computer music research, IRCAM (Institut de Recherche et Coordination Acoustique/Musique) a branch of the Centre George Pompidou in Paris where he has worked as a Research Scientist since 1984, and as a Professor of Composition since 1993. It was at IRCAM where Manoury composed *Zeitlauf*, a work for mixed choir, instrumental ensemble, synthesizers, and tape.

For the European Year of Music, the Council of Europe commissioned Manoury to compose *Aleph,* which premiered in 1985. He continued to compose a series of chamber works, among which were *Musique I and II*, and *Instantanés*. 1992-1993 he composed the opening of the opera *La Nuit du Sortilège* (later renamed *60e Parallèle*), which won an award from the UNESCO International Composers' Tribune. He also has produced two other operas, *La Frontière* and *K. K* was commissioned and premiered by the Paris Opera. One of his most important works is the *Sonus ex Machina* series of compositions (*Jupiter*, *Pluton,* and *Neptune)* for solo instruments and real-time computer processing.

Patricio de la Cuadra is pursuing his Ph.D in Computer Based Music Theory and Acoustics. He has received a M.A. in Music, Science and Technology together with his M.Sc. in Electrical Engineering at Stanford and the Diploma Superieur d'Execution at the Ecole Normale de Musique de Paris/Alfred Cortot in Paris. He also was honored with a Fulbright grant and the President of the Republic of Chile scholarship. Prior to coming to Stanford, Patricio studied Flute Performance and Electrical Engineering in Chile at the Universidad Catolica de Chile. Between 1992 and 1998 he was a member of the musical group Barroco Andino, playing various Chilean folk instruments and performing in Europe, South America, Japan, Taiwan, and US (including Carnegie Hall '94). The group also recorded three professional CD's.

Gag Order

This piece was commissioned by NoTAM for the GRM Acousmonium sound system. The material is derived solely from three old native Japanese instruments: flute, metal-clock, and drum -- and then rigidly processed by custom made DSP-applications I wrote exclusively for the piece.

Peer Landa was born in Norway. For the past eighteen years, he has barely survived by composing computer and instrumental music. He was invited to CCRMA in 1989 by John Chowning.