



CCRMA  
Winter Concert

## PROGRAM

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**65 second bicycle** Fernando Lopez-Lezcano

**Two Phaser Songs** Max Mathews

**The Deep Dark Underground** Nicholas Bryan

**A Very Fractal Cat** Fernando Lopez-Lezcano

► intermission ◀

***vuurvangerkindmens*** Cobi van Tonder

**Spatial Experiment with Sancan's Sonatine** Jason Sadural

**I Smell Crickets: A Conversation  
For Synthesizer and Computer**  
Craig Hanson & Andy Greenwood

**Later** Rocco Di Pietro

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## PROGRAM NOTES

### 65 second bicycle (2008)

Fernando Lopez-Lezcano

(65 secs)

Many bikes in Berlin, sleek, purposeful, fast, everywhere. Cut to Pasadena (long story), a big garage in a museum and a forgotten bike. A key on a keychain and some fun hitting the spokes of the wheels and other metal parts with it, recorder in hand. Materials for this analysis / resynthesis piece (one of 85!) that was commissioned for a concert-celebration of Prof. Folkmar Hein's birthday (thus the length) and retirement. Prof. Folkmar has been working at the Elektronische Studio in TU-Berlin' Fachgebiet Audiokommunikation for more than 30 years.

### Two Phaser Songs (2009)

Max Mathews

#### Chowning Phasered

The sound file is an early FM composition entitled "Chowning" by Dexter Morrill

#### Tensor Love Phasered

Setting of a poem entitled "Love and Tensor Algebra" by Stanislaw Lem. The sound file was sung and recorded by Laurie Amat who improvised the pitch line.

Each song is produced by filtering an input sound file with a bank of 27 phaser filters. The filters are tuned to the the frequencies of a chromatic Boylin-Pierce scale, the resonance frequency of each filter being higher than that of the preceding filter by the 13th root of 3. The bank of filters spans two tritaves (a factor of  $3 \times 3 = 9$ ) in frequency. The frequency of the lowest filter is 262Hz. The entire bank can be and is transposed up or down in frequency during a performance by various numbers of Boylin-Pierce scale steps. For performance, filtering is done in real-time on a laptop computer with a program, `usbphaser.c`, which I wrote as "timbre workbench". Each phaser filter is a single resonance. The resonant frequency and the decay time of each resonance can be modified, "played", during the performance. A "filter frequency" vibrato can be applied to the resonant frequency of some of the filters during the performance. The input file is applied to the inputs of all 27 filters and outputs of all 27 filters (the wet sound) are mixed together along with an adjustable amount of (the dry sound) directly from the input file to produce the output sound file. The filtering is done in real-time on a Macintosh laptop computer. The sound files are in the memory of the computer. Real-time control of the filter parameters is provided by pushing keys on the computer keyboard and by sending 16 midi control change signals from a midi source box with 16 knobs. Phaser filtering produces strong changes on the timbers of the input sound file. Since filtering cannot add new frequencies to a sound file, all audible frequencies must come from the the sound file. Filtering can and does greatly change the amplitudes and durations of energies in the sound file at particular frequencies, these frequencies being the resonant frequencies of the filters. Usually the resonances stretch the sounds in time and make them decay gradually. These resonant decays turned out to be more inter-

esting and beautiful than I expected. I wonder if the human auditory brain contains neurons that are resonance detectors?

### Love and Tensor Algebra from The “Cyberiad” by Stanislaw Lem

Come, let us hasten to a higher plane  
Where dyads tread the fairy fields of Venn,  
Their indices bedecked from one to n  
Commingle in an endless Markov chain!

Come, every frustrum longs to be a cone  
And every vector dreams of matrices.  
Hark to the gentle gradient of the breeze:  
It whispers of a more ergodic zone.

In Riemann, Hilbert or in Banach space  
Let superscripts and subscripts go their ways.  
Our asymptotes no longer out of phase  
We shall encounter, counting, face to face.

I'll grant thee random access to my heart,  
Thou'lt tell me all the constants of thy love;  
And so we two shall all love's lemmas prove,  
And in our bound partition never part.

Wielding their compasses, their pens and rulers  
what did Cauchy know, or Christoffel,  
Or Fourier, or any Bool or Euler,  
Of thy supernal sinusoidal spell?

Cancel me not - for what then shall remain?  
Abscissas some mantissas, modules, modes,  
A root or two, a torus and a node:  
The inverse of my verse, a null domain.

Ellipse of bliss, converge, O lips divine!  
the product of four scalars is defined!  
Cyberiad draws nigh, and the skew mind  
Cuts capers like a happy haversine.

I see the eigenvalue in thine eye,  
I hear the tender tensor in thy sigh  
Bernoulli would have been content to die,  
Had he but know such A squared cos 2 phi!

### The Deep Dark Underground

Nicholas Bryan

Beau Silver, percussion, Baek San Chang, Rhodes

The Deep Dark Underground is the consequence of hearing an evocative recording of Tito La Rosa, native Peruvian musician, demonstrating the sounds of seven Strombus trumpets unearthed from the ancient pre-Inca ruins of Chavín de Huántar, Peru. The original recordings were made in the Museo Nacional de Chavín, 13 September 2008 by Miriam Kolar as part of the ongoing Chavin Project here at Stanford University. The recordings were presented along with acoustically significant archeological findings regarding Chavín, suggesting the ancient site was a place of musicaly rich ceremony and ritual. The Strombus trumpet recordings were used to create a trance-like layering on top of a consistent drumming pattern and distorted interval tones.

### A Very Fractal Cat

Fernando Lopez-Lezcano

for cat, four pianos and electronics

This is the second piece, after “Cat Walk”, of a series of algorithmic performance pieces for piano(s), computer and cat (the proverbial cat walking on a keyboard – that would be me). The keyboard controller connects three virtual pianos and a real one through algorithms. In this version simple fractal algorithms that derive their materials from the performer's events provide textural background to other computer recreations of the performance. The computer also adds sonic textures and sound processing. All the event, audio and algorithm processing was written in SuperCollider.

**vuurvangerkindmens (2008)**

**Cobi van Tonder**  
video and sound diffusion

The title translates to 'fire catcher child person'. A short voyeuristic view of a small girl playing with fire. She seems to disappear into the smoke. The video is slowed down drastically and given the low light, long distance conditions of the filming, the camera's struggle to focus puts the viewer at a strange disposition. The smoke almost looks like water. The soundtrack is meant to enclose, drown and disconnect the viewer. A small poetic moment.

**Spatial Experiment with Sancan's Sonatine**

**Jason Sadural**  
flute and electronics  
**Jieun Oh, flute**

Jieun Oh will be playing various excerpts from Sonatine performed in an acoustic recreation of various spaces using multichannel audio. She will be playing into an acoustical microphone array that will also be able to capture physical gestures. She will be exploring these spaces with various musical gestures as well morphing through different spaces in real-time with physical movements of her flute. This performance is an attempt to create an engaging melodic dance and musical storytelling performance by adding a dimension of meaningful audio through movement. Special thanks to Jonathan Abel and Steinunn Arnardottir for their contributions to the technology used in this piece.

**I Smell Crickets: A Conversation**

**For Synthesizer and Computer** **Craig Hanson & Andy Greenwood**  
electronics

A bunch of jazz dudes have told me that according to conventional rules of music theory, no completely original music has been written since the Baroque period.

So one night, I was out at a bar with this girl and I started talking to her about music. I told her that I hadn't focused my time on learning traditional music theory because it has already been so well explored. Why work so hard to learn the things that everyone else already knows? We have new tools. We aren't limited to vibrating strings and hollow bodies; wooden reeds and curved bells.

Our instruments are works of science fiction. Our instruments make noises that function in a theory unique unto itself. We are evolving beyond the theory of notes to the theory of tones; an infinite permutation of a simple note. This path is ours to develop because we have made the tools. The headspace of tonal creativity is afforded to us by our investigation into novel implementations of technology. We synthesize sounds in a laboratory that have no natural genesis. White coats and open minds man, give me the gloves and hit record.

Andy adds: in the mean time, please enjoy this conceptual piece of music. Note that Andy is playing just a synthesizer. This is by design. An old

school synth, like the nord lead 2, has limited capacities. At any time, it can play up to four patches with two tonal oscillators per patch. It has two lfos that work on an arbitrary time scale. Therefore, performance with this instrument has a high screw-upability factor. This just makes it that much better when done properly.

**Later** (2004-2005)

**Rocco Di Pietro**  
**Larry Marotta**, guitar

Obituaries and Ragas for Guitar, Sampler and Reason Drones- (in this version on fixed media) with live 'multiple' accompaniment. Performed by Larry Marotta, accompanied by Rocco Di Pietro

"Later" is a conceptual work which grew out of several ideas at the end of the "Lost Project" a work based on the musical monograms of missing persons and lost children. My mother would send me obituaries of dead Buffalonians and i took there monograms and assigned guitar chords to them with various instructions for improvisation. Then the guitar navigates its way to a hindu raga after each obituary. The obituaries are dark and are accompanied by a live sampler played by David Reed. I sampled the voice of one of my students speaking in Greek after a lecture I gave on Baudrillard. She told me she could not understand anything I was saying as Baudrillard was so strange to her, so she would give me a paper in Greek so I could experience her sensation. The Ragas are accompanied by Reason Drones. The work goes back and forth in this manner like a series of panels or frescos. I am very fond of a flat surface with just a little spacial element, this work achieves that. (RDP)

## ABOUT THE ARTISTS

**Laurie Amat** has been called "The Voice on Everyone's Lips". She performs a wide range of music including modern chamber and opera works, experimental structured and improvised solo and ensemble works, punk rock and popular song. She has sung everywhere from small salons, alternative performance spaces, clubs and underground pubs to galleries, cathedrals, castles, movie palaces, bunkers, tunnels and symphony halls. In addition to her extensive solo voicework, she collaborates in a wide range of groups and performers. As a composer she has created music for dance and multimedia performance, including Jakub Kalousec's "Flipping", Cecil B. Feeder's documentary "Our Lady of Tamale" and 21 Grand's installation of Joanie Blank's "Faces of Ecstasy". She is working with computer music pioneer Max Mathews of CCRMA at Stanford developing repertoire for the midi music controller, the Radio Baton.

**Nick Bryan** is graduate student in computer-based music theory and acoustics under Professor Ge Wang and primarily interested in the intersection of computer music, signal processing, and artificial intelligence. Nick graduated from the University of Miami with a B.M. in Music Engineering and B.S. in Electrical Engineering with highest honors summa cum laude. While at UM, Nick was fortunate to perform clarinet, bass clarinet, and contra-bass clarinet in the Symphonic Wind Ensemble, Electronic Music Ensemble, and notable performances with the Frost Wind Ensemble at the American Bandmaster's Association in 2005 and Carnegie Hall in the spring of 2007.

**Baek San Chang**, guitarist, pianist, and artist graduated with a M.A. in Music, Sci-

ence, and Technology from Stanford University in the spring of 2008 and a B.S. in Electrical Engineering from the University of Florida with honors in 2007. Baek's research interests include digital signal processing, human computer interaction, innovative midi controllers, granular synthesis, live electro-acoustic music, and everyday efficiency. Baek is currently an audio software engineering at Palm, makes ambient electronic music in his spare time, plays shows whenever he can, and strives to be exceedingly efficient whenever possible.

**Andi Greenwood:** Once upon a time, Andy Greenwood spent all of his free time obsessively writing weirdo electronic music. Then, he found out that it is really hard to make a career writing weirdo electronic music so he became a chemistry/math student in college but kept writing music. It became apparent to Andy, and his parents, that it is really hard to get good grades in science classes while writing music all the time. So he concentrated on traditional means of career development. He graduated and became a high school chemistry teacher and then became a federal government employee (worst job ever). Now, Andy is trying to become some sort of weirdo music / sound engineer / scientist hybrid as an MST at CCRMA. Will Andy be able to make a career as a weirdo scientist-sound guy-engineer-musician-person? Tune in next time to find out!

**Craig Hanson** is a current graduate student in Music, Science and Technology at CCRMA. He comes to us from Boston, MA with a varied background in music theory, applied information research and computer systems. He is an active composer of electronic music, specializing in a combination of experimental and traditional forms of electronic music. His recent compositions explore minimal sonic textures through live electronic sound synthesis and manipulation. Most recently, Craig is co-developer of The LUMI, a new human computer music interface optimized for computer music production and live performance. Academically, his research interests lie in the fields of sound synthesis, music information and real-time music systems.

**Larry Marotta** is a musician, composer, and improviser based in Columbus, Ohio. He has performed original silent movie scores throughout the US. His movie soundtracks have appeared on Turner Classic Movies and on DVDs released by Kino International. His career as a performer has covered a lot of territory. Noted composer Rocco Di Pietro wrote Later with Larry's unique style of guitar playing in mind, and the piece has been performed in Los Angeles and New York City. As an improviser, he plays guitar with an eclectic mix of musicians including Burning Star Core, Ryan Jewell, Envenomist, Tatsuya Nakatani, Mike Shiflet, Kyle Bruckmann, Ernst Karel, Dave Rempis, Neil Feather, and many others. Currently, he curates the Marotta Hour new music series at the OSU Urban Arts Space.

**Max Mathews** is a pioneer in the world of computer music. He studied electrical engineering at the California Institute of Technology and the Massachusetts Institute of Technology, receiving a Sc.D. in 1954. Working at Bell Labs, Mathews wrote MUSIC, the first widely-used program for sound generation, in 1957. For the rest of the century, he continued as a leader in digital audio research, synthesis, and human-computer interaction as it pertains to music performance. We are very fortunate to have him at CCRMA.

**Fernando Lopez-Lezcano** received Master Degrees in Electronic Engineering (University of Buenos Aires, Argentina) and Music (Carlos Lopez Buchardo National Conservatory, Buenos Aires). He has been working in the field of electroacoustic music since the mid 70's, in instrument design, composition and performance. In a former life he worked in industry designing microprocessor hardware and software for embedded real-time systems. He created and maintains the Planet CCRMA at Home Open Source package collection of music and sound applications. In 1992 he taught computer music at Keio University, Japan. Since 1993 he keeps computers and users

at CCRMA happy (most of the time), teaches courses about various electronic music subjects, composes and performs his own music and enjoys the company of good friends. He was the "Edgar Varese Guest Professor" at TU Berlin during the Summer 2008 semester.

**Jieun Oh** has been playing flute for twelve years and is currently studying with Melody Schaeffe. She has been a member of Stanford Symphony Orchestra (2004-2008), Stanford Wind Ensemble (2005-2006), Stanford New Ensemble (2007-2008), and Stanford Laptop Orchestra (2008-present). In 2007 and 2008, Jieun received the Humanities and Sciences Undergraduate Prize in Music Performance. She hopes to become a more experienced computer-music performer and producer.

**Rocco Di Pietro** studied music with Lukas Foss and Bruno Maderna at the Berkshire Music Center Tanglewood where he was an Ascap fellow. His latest works are "Body Trap" for the Wired Sound Ensemble with Chris Chafe and Pauline Oliveros and "One Stone Flow" from "The comedy of the Real" for Ge Wang and the Slorc Ensemble. He has interviewed many musicians, including Pierre Boulez, Lukas Foss and John Chowning. His book "Dialogues with Boulez" is published by Scarecrow Press. His most recent interview is scheduled here at CCRMA with Laetitia Sonamni.

**Jason Sadural** received a Bachelors Degree in Astro-physics from University of California, San Diego in 2006. Studying the tenor saxophone at an early age, he then began his exploration of computer music at UCSD under the direction of Peter Otto and Miller Puckette. After earning his B.A., he quickly became a visiting researcher at the Center for Computer Research of Music and Acoustics (CCRMA) at Stanford University. In 2008, Jason became a computer technical staff member at CCRMA and now serves as a Stanford University masters student in Music Science and Technology, Class of 2010. His strong interests are in Spatial audio, Human Computer Interaction, and Sonification techniques.

**Beau Silver** has always tried to fulfill his passion about the fusion of music and technology in both work and play. He graduated from the University of Miami with a degree in Music Engineering with classical percussion as his principle instrument and has been interested in all forms of drumming including classical percussion, drum set and marching band. He currently plays drum set for the Palo Alto band Portage Ave., performing shows around the Bay Area. Beau works as a software engineer for the audio engineering company Euphonix, who manufactures large digital mixing consoles. Beau strives to express himself through all of his passions and hobbies including yoga, unicycling, board sports and beer brewing.

**Cobi van Tonder** (South Africa): composer/performer/media artist. Cobi van Tonder completed a BA Hons Music in History and Society at the University of the Witwatersrand and a National Diploma in Jazz and Musical Theatre. The artist creates over a multifaceted range of media, traditions and subcultures with some focus on the performance and interactivity of real-time physical movement driven electronic and electro-acoustic music. Her works and collaborations have been exhibited and performed in South Africa, London, Stuttgart, Toronto, Ogaki, California, Antarctica, New York and Seoul. Van Tonder is currently completing an MFA Art Practice degree at Stanford University with research focus on sound installation and video art.

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Cameras and other recording equipment are prohibited.  
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<http://ccrma.stanford.edu/concerts/>

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