

Southworth makes music outside the rules

MIT alumna Christine Southworth's latest composition for generator, robots, instruments and voices features some high-voltage star-power – the 40-foot-tall Van de Graaff (VDG) generator at the Museum of Science in Boston.

Southworth, who graduated from MIT in 2002 in mathematics with a minor in music, incorporates the flashing lights and static from the popular de Graaff generator along with robotic instruments and live performers in her new piece, "Zap! Music for Van de Graaff Generator, Robots, Instruments and Voices."

"Zap!" will premiere on Friday, Feb. 4 at 6:30 p.m. at the Museum of Science's (MOS) Theater of Electricity.

The de Graaff is the largest of its kind in the world and is capable of producing up to 1.5 million volts of electricity.

Like Southworth, the generator, is, in a sense, also an alumnus of MIT. Designed and built at MIT in the 1930s by MIT Professor Robert J. Van de Graaff, the generator was originally used as a research tool in early atom smashing and high-energy X-ray experiments. MIT gave the generator to the Museum of Science (MOS) in 1956, where it is now used in daily demonstrations of lightning and electricity.

"Zap!" is an offshoot of a project started by Southworth and Leila Hasan (M.Eng. and S.B. Electrical Engineering 2001), called Ensemble Robot, a small collection of robotic musicians who produce both simple and complex patterns of sound from acoustic sources including strings, pipes, drums and wooden keys. "Zap!" will include at least three of these robots but "not all the robots are happy playing in proximity to the high voltage," Hasan said.

Southworth and Alexandra Andersson (S.B. Electrical Science and Engineering & S.M. Electrical Engineering and Com-

puter Science 2003) will be responsible for triggering various "zaps" from the generator and its surrounding Tesla coils. At the same time, Hasan will control variations in voltage using her MIT thesis project: a musical interface/sensing device, inspired by the Theremin, that she calls a "termenova."

Human musicians rounding out the cast are Ramon Castillo (conductor/music director), Akili Haynes (percussion/voice), Blake Newman (bass), Erik Nugent (Lyricon/voice), Sachi Sato (keyboard), Mei-mi Lan (keyboard), Christine Southworth (voice), Rebecca Zook (cello) and Jeff Lieberman (guitar/keyboard), an MIT alum (S.B. Mathematics and Physics 2000, S.M. Mechanical Engineering) currently pursuing a Ph.D. in Media Arts and Sciences.

Other contributors to the project include Mike Mayo (sound design), Yu-cheng Hsu and Giles Hall (programming) and MIT alums Luke Phelan (S.B. Humanities 2002—documentation) and Kevin McCormick (S.B. Electrical Engineering and Computer Science 1999—lighting design).

Southworth is currently pursuing a master's degree in Computer Music and Multimedia Composition at Brown University and continues studies in composition with Kenan Sahin Distinguished Professor of Music Evan Ziporyn, with whom she has also edited and mixed two records. She has received awards and fellowships from the American Composers Forum, The Ernest Bloch Music Festival, Bang on a Can Summer Institute of Music and the MIT Eloranta Fellowship. A member of MIT's Gamelan Galak Tika, she also teaches electronic and Balinese music composition to children and adults in Cambridge and Boston.

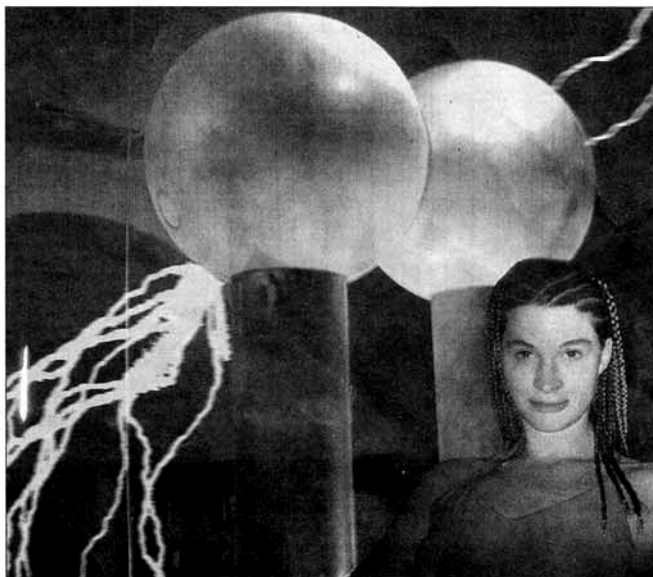


PHOTO / EVAN ZIPORYN

"Zap!" composer Christine Southworth (S.B. 2002) poses with the Van de Graaff generator that provides static and flashing lights for her musical composition. "Zap!" is a seven-piece featuring the former atom-smasher in concert with flutes, guitar, cello, bass, piano, and robots and human voices.

ArtTalk: Christine Southworth, composer

Lynn Heinemann of the Office of the Arts asked composer Christine Southworth why she chose to cast the 40-foot de Graaff generator in "Zap!"

Q. Why a Van de Graaff generator?

A. The Van de Graaff generator is spectacular. It makes huge sparks of lightning, big booming sounds; or it can make a beautiful glowing corona with a sweet humming buzz. I came up with this idea with Andy Cavatorta, who works at the museum, and it just made sense. For this piece, I've treated the Van de Graaff generator as a combination percussive instrument and light show.

Q. How did you get the idea for this project?

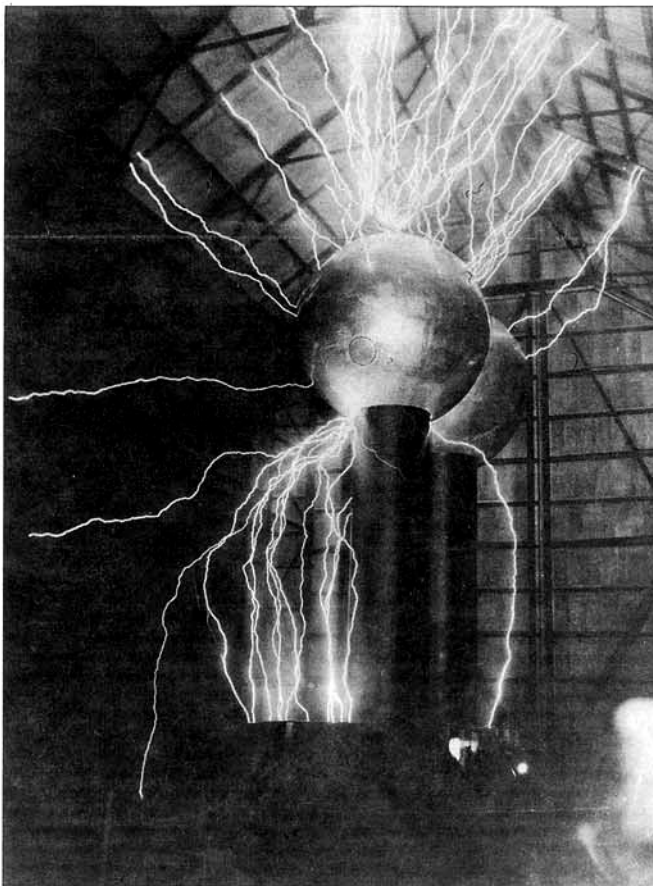
A. About two years ago I decided that I needed to make robots to play my music, because it was too hard for people to play. This was more of an issue with my notation than anything else, but I thought it would be amazing to be able to play electronic music, as a midi sequence, on real instruments. My friend Leila Hasan builds robots, so soon after that we started applying for grants to make this happen, and

Ensemble Robot was born. With generous support from the LEF Foundation, we've spent the past year developing this project.

We went to the museum about a year ago with the idea of putting the robots in the museum as entertainment, perhaps in the cafeteria or lobby. While we were exploring possibilities with that, Andy Cavatorta mentioned the Van de Graaff generator and this project just exploded into being.

Q. Does "Zap!" fall into an identifiable musical category?

A. My music could be called "post-minimalist acoustic electronica," amplified. I've been influenced by classical music—Vivaldi, Bach—and by modern music—Steve Reich, Terry Riley, Michael Gordon, Louis Andriessen, Arnold Dreyblatt, Meredith Monk, and of course by my teacher, Evan Ziporyn. I've also been influenced by electronica, jazz, hip-hop and rock and roll, specifically Kraftwerk, the Beatles, and Tribe Called Quest. And video game music. And gamelan! I would say my music is pretty; it rocks, grooves, and follows no rules really. My teacher at Brown, Shep Shapiro, said "This music doesn't break the rules; it rather renders the rules obsolete." I like that.



The Van de Graaff generator (above) is the largest of its kind and can produce up to 1.5 million volts of electricity. In Southworth's composition, zaps from the generator will be triggered by humans; voltage will be controlled by a "termenova," a musical sensing device.