JESS ROWLAND

Sonic Electromagnetism

Thoughts on a Queer Sound Art Practice

ABSTRACT The author describes their sound art practice, which uses the electromagnetic field (EM) to explore concepts of the body toward a feminist and pro-trans future. This practice stands in contrast to hidden consumer "black box" culture and mediated digital telepresence. Three specific art projects are explored that fuse visual design, printed circuitry, and interactivity to build critical space for participatory exploration. The author explores concepts of the body in relation to spatialized sound and queer phenomenology of sound. Lastly, the author suggests that the creative exploration of sonic electromagnetism is a larger movement by a disparate community of artists who aim to challenge existing systems of power. In their exploration of the electromagnetic field, the author argues that these artists strive to harness a new source of empowerment and spirit. KEYWORDS sound art, sonic electromagnetism, feminism, phenomenology, interactivity

INSIDE OUT AND OUTSIDE IN

While our eyes are busy poring across the glossy and matte veneer, our ears experience the inside of things. When I speak, you hear my guts and spleen, the bile and the thrapple; you hear the meat of my body. My voice sounds the same whether I wear a hat or not. Knock on a hollow surface and you hear its empty internal space, the humble substance hard and true, not only the patina. When you listen, you experience what is hidden.

At the same time, there is an intertwined complexity, possibly an irreducibility, a false binary, between sound and vision. Sound appears on the vibrational surface and gets attached to surfaces through mental connections. Sound reflects off the boundaries between this and that. My voice is imagined as coming from the image—from what I see in the mirror. Consumer electronics give the impression of coming solely from a surface: the glossy white plastic of an earbud with only clean machined pinholes to suggest anything deeper, the image of a face with moving mouth and highlighted zoom rectangle box, the ever-efficient black molded plastic audio brick with the blue LED for wireless connection. The sleek minimalist surface of titanium on the laptop obscures where and what sound is—and from whom it came.

To hear, then, is a complex experience of inside and outside. For my own experience as a trans artist in the 21st century, with its not-so-late-age capital and its obsession with image and spectacle, this complicated dynamic tugs at all the tangled mess of what is inside me and what is outside me. I'm challenged by finding the true source of my voice, where it is placed if it is placed at all. I want to be real, to be a speaker and a voice. I don't suppose to be alone in this struggle.

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The sounding voice has a power and potential, unmatched by the visual world, to challenge the inside and outside. These are concerns of the body. This challenge for integrity as an inside and outside, and for an understanding of ourselves separate from the consumer surface, poses a question: What does it mean to experience the world as a body, to be an inside and outside at the same time, when the inside and outside are so contested and perilous?

In a visual consumer world, sound can go undetected and lies hidden beneath the surface. Sound can be subversive, can be queer, can be other, and can travel places unknown by systems that aim to compartmentalize and conform us. Sound's potential for secret adventure compels me to explore questions about our surface world and hidden systems. As an artistic material, sound has a particular and powerful way into this murky space of complication.

There must be more than a binary in and out, more than the switch of yes or no, more than the reduced yin or yang. How do we understand the peculiar phenomenological condition of being both in the world, and not part of it? Surely the surface and substance are more complicated for both the ear and the eye, never mind for the conscious awareness that is somehow attached to it all.

In my work, I want to complicate how we experience the boundaries between in and out, and demand new dimensions of positionality—because I am myself neither this nor that. When I allow for other possibilities, or even better, allow for other impossibilities, I am building a world where we can explore the abundance of mystery, a deep secret, an escape, and a returning home.

Much of my work explores these themes of the inside and outside through the electromagnetic field (EM) as a carrier of sound and of spirit. I deploy printed circuitry from thin foils on surfaces as both visual design and as a source of sound that aims to discover the magic and power of the invisible EM field around us.

Three works from my practice will be highlighted here that focus on these techniques and themes. Far from a settled conclusion about sound and surface, these works open questions as part of an ongoing art practice. This practice is part of a growing interest in sound artists exploring the electromagnetic field to challenge our given passive experience of sound, and to build new kinds of space.

REVEAL PARTY

One such work, *Reveal Party* (2020), is a mixed media installation at the Lewis Center for the Arts, exploring these themes using conductive foil surfaces.[1] Entering into the gallery space (Fig. 1), visitors would not hear anything from the installation. Visitors would only see surfaces, what appear to be prints, a visual art exhibit. However, these printed works contain aluminum and copper foil circuitry and copper tape, conductive surfaces that act as both a visual design and conduit for audio signals (Fig. 2). These prints were made to be as lo-fi as possible, crumpled aluminum passed through a plotter/cutter. The visual design, through its rough, slightly uncuttable surface, creates a design that half follows the automated path and half refuses it. The printed circuitry is a chaotic and

FIGURE 1. Full installation of *Reveal Party* installation and exhibition by the author, Lewis Center for the Arts, 2020. Courtesy the artist.

unpredictable dance. Iridescent foil backing allows for a celebratory Party City aesthetic, drawing us toward the undefinable ever-changing colors of the reinventing self.

By placing a specially modified stethoscope up to these prints, sounds can be heard (i.e., "revealed") (Fig. 3). These sounds result from the interaction of two components: (1) the audio signal passing through the printed circuitry of crumpled foils, and (2) a magnet attached to the inside of the stethoscope.

When the magnet inside the stethoscope comes in close contact with the signal running through the electrical circuitry, an interaction occurs between the permanent magnetic field of the magnet and the electromagnetic field generated by the current running through the printed circuitry. This causes the magnet inside the stethoscope to vibrate and generates subtle sound that can be heard when one puts their ear close to the stethoscope. Sound is only generated by the dynamic interaction of the electrical signal with the magnet-stethoscope. Otherwise, the sounds are only potent, waiting to be discovered, silent until actively approached through this close connection between the circuit's electromagnetic field and the magnetic field of the stethoscope.[2]

Importantly, the sounds in *Reveal Party* are not digitally created. Rather, the sounds are only generated by the electromagnetic interactions of surface circuitry and the magnet in the stethoscope—they require the participation of the listener/viewer who brings the stethoscope to the sound object. As an experience of electromagnetism, it is a manifestation of the spirit of the Electromagnetic Goddess in her glory, something true, a physical fact, physics as phenomenon.[3]

If we think of the electromagnetic as something alive, something that cannot be commodified, it can live in the body. It is dimensionless and beyond the physical world while being in it. It is hidden and revealed. It escapes the duality of in and out. It is a next layer of the yin and yang. Each body has its own sound. The sound is not a passive experience. To hear is to engage and make choices, to explore and question.

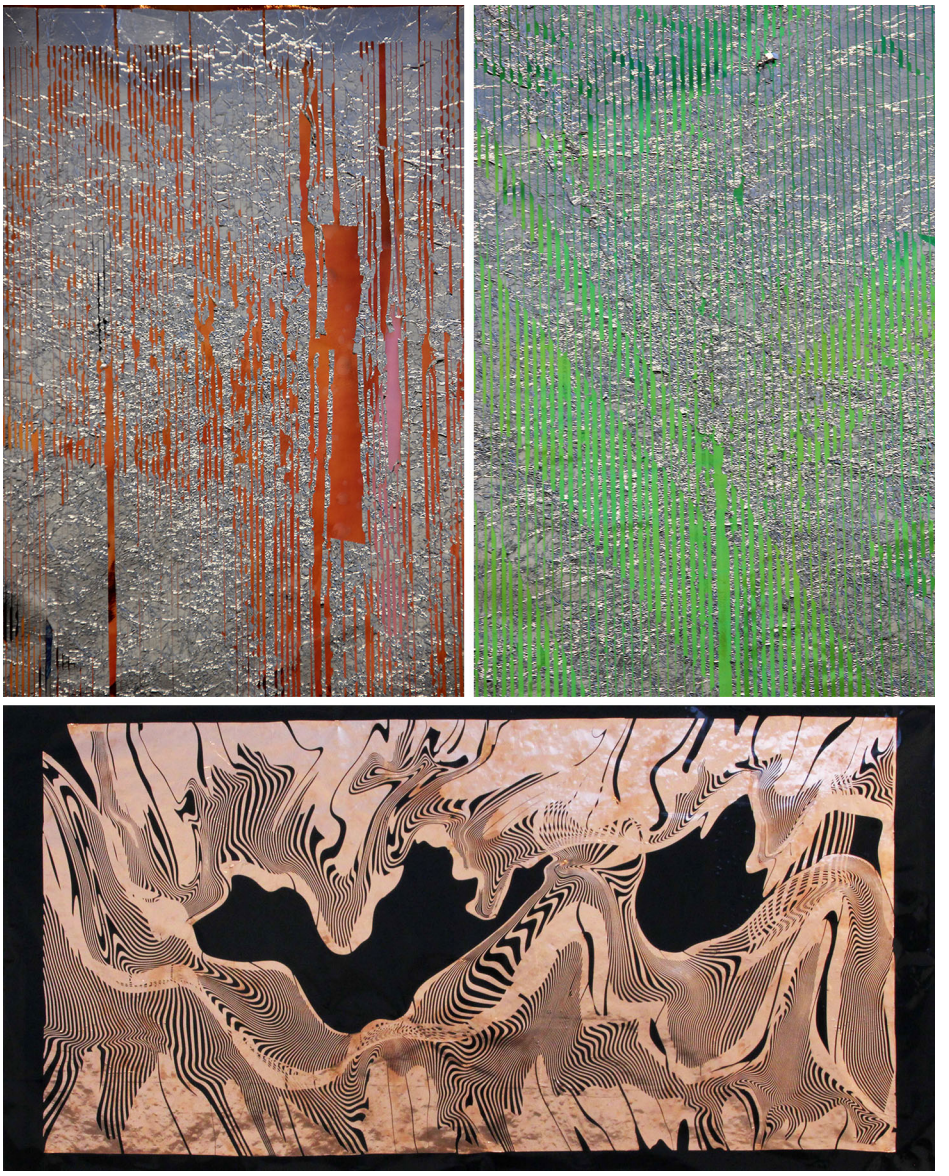

FIGURE 2. Prints for *Reveal Party*: **a.** Crumpled aluminum foil on iridescent film, one audio-channel circuit, 26 × 18 in. (approx.). **b.** Crumpled aluminum foil on iridescent film, one audio-channel circuit, 26 × 18 in. **c.** Copper foil on black vinyl, four audio-channel circuit, 4 × 8 ft. Courtesy the artist.

For example, in one print we can hear "Just the Screams" when we place the stethoscope up to the print and place our ear by the stethoscope. *Just the Screams* is a compilation of—well—just the screams from the "reveal" at gender reveal parties posted in YouTube videos. *Just the Screams* can be heard in Figure 4. Disassociated from its context, the screams take on an absurd quality that can sometimes sound like horror, or joy, or really just about any emotion on the rollercoaster of confounded experience.

FIGURE 3. Interactivity for *Reveal Party*: **a.** Close-up of the modified stethoscope showing central sound hole for listening. Magnet attachment is hidden inside the body of the stethoscope. **b.** Participants interacting using the stethoscopes. In this image, the participants are using the stethoscope's aural tubes to listen. **c.** Several participants interacting in their own unique way, some using the stethoscope. Courtesy the artist.

FIGURE 4. *Just the Screams* by Jess Rowland: https://plastoglomerates.bandcamp.com/track/just-the-screams. (Audio file.)

SOURCES OF INSPIRATION

The sounds within my EM pieces can be generated by pre-placed magnets directly on the surface, or interactively by practices such as participants applying the *Reveal Party* stethoscopes. The prints are structured as a type of creative play to fuse together human gestures, musical interfaces, audio speakers, and visual art. Accordingly, as objects they are part graphic score, part instrument, and part speaker.

This line of work is in conversation with other artists before me who have explored sonic electromagnetism. Notably, Christina Kubisch's work with inductive fields, and especially her *Electromagnetic Walks*, are an important inspiration for my own practice.[4] In *Electromagnetic Walks*, participants are invited to wear headphones fitted with inductive pickups, which allow them to hear the otherwise inaudible EM fields that emanate from the urban environment around them: ATMs, security passthroughs, subway lighting, and arcades. This is an opening-up of hidden systems as a form of creative play. I suggest, in *Electromagnetic Walks*, the inductive pickup coil can be thought of as an antenna for the electromagnetic spirit. Participants explore an unmediated experience to find this spirit, the Goddess of the Electromagnetic Spectrum, which lives even in the ATM, in the power lines and the elevator buttons and the digital ad display. Because of its wily and inaudible nature, EM usually goes unnoticed in our everyday lives. Picking up EM as sound is the equivalent, a metaphor perhaps or maybe something more, of an enlightenment or (by analogy from vision) ensoundment. This ensoundment brings sound through the process of the inductive EM pickup, a discovery of something beyond but also in the world.

It is also a chance to ask how these systems are deployed as technology and capital. When we literally open systems (such as in my work like *Reveal Party*), we can see their paths and visual connections. We can question and challenge these relations and dynamics. When we do so with sound, such as using inductive coils in *Electromagnetic Walks,* exposing the hidden fields of EM, we can explore these systems with sound as well as vision. These works using EM to find sound act as another kind of "reveal"—revealing what is behind the surface.

As audio technology, these EM fields open up a range of new possibilities for interactivity theory. Adrian Freed, the former research director at the Center for New Music and Audio Technologies, introduced the idea of *co-located sounds*.[5] Co-located sounds are an aesthetic approach in which human-generated sound is created through

electromagnetism at the same locus as the human gesture of their creation. Importantly, as with the artworks discussed so far, this co-location is literal. The actor and the action and the sound all take place in the same unmediated physical location. Co-located sounds are a complication of gesture and response, a defamiliarization of our usual understanding of relation between instrument and performance, of musical interface and speaker, of body and EM field.

This EM co-location is in conversation with notions of sound embodiment—the idea that our experience of sound can be understood as a complicated interaction between the body and social space. Co-location suggests the notion of the space of action, the location of sound, and the body itself as one and the same. As a confounded experience, co-located EM sound is a way of thinking through unexpected possibilities for sound embodiment.[6]

This embodiment of sound, so central to my own work, is an ongoing conversation in art research. For example, Gascia Ouzounian draws our attention to Laurie Anderson's *Handphone Table* as a way of thinking about the body as a carrier of sound, and of the body as a creator of personal and social space.[7] In Anderson's piece, participants are invited to sit facing each other and place their elbows on a table, hands cupping their ears, as vibrations in the table send hidden sounds from inside the table through the body as a carrier of vibration, and into the ears. The sound in this piece could be called co-located—a complication of the human gesture, body, proprioception, interpersonal relations, and sound all at once. While Ouzounian discusses these body connections to sound with an eye toward the social aspects of our experience, these connections and complications and attachments can also be thought of as a place of phenomenological reflection.

THE GODDESS OF THE ELECTROMAGNETIC SPECTRUM

My work is part of an ongoing conversation with other artists who explore this power of electromagnetism to go beyond the world as given and to offer a feminism, a force for queer bodies, and a space for the nonconforming other. I would argue that this construes an organic movement, ideas in the ether that are picked up by each of us, ready now for its time, of which my own work is just a small part.

For example, the self-described "transnational feminist collective" Radio Amatrices explores EM radio signal as "Feminisms of the Aethers" and invites others to explore EM in an effort to "move beyond the boundaries of the present-day notion of the human, and fully embrace the potentials of becoming cyborg-queer-xeno-postcolonial."[8] In a related artistic exploration, Afroditi Psarra builds wearable, sewn, conductive foil surfaces for radio-receiving outfits to make the EM field a bodily experience for feminist practice, nonmasculine bodies, receiving satellite signals, and hacking into systems of transmission.[9] Composer and performer L. Alexis Emelianoff uses performance with hand-built induction coils and creatively constructed sculptural EM environments as a way to invoke this invisible EM spirit, which she calls "sounding electrical fields."[10] EMKVLT—a tongue-in-cheek cult of the Goddess of the Electromagnetic Spirit with founding members Sofy Yuditskaya, Margaret Schedel, and the author—uses this aether to evoke the Goddess during performances.[11]

There are undoubtedly countless others also exploring and creating and building on this notion of EM as a force for the other, the nonconforming, and the stranger. It is a completely nonorganized but completely organic coming-into-being of creative force that wants to find places for active empowering experience, not the given masculinized consumer purchasable; not the world as given, not the asking of our digital zooms and virtual realities to turn us farther away from each other and instead into the arms of the Metasphere, which only recreates in new forms the failures of our systems.

THE CONSUMING, CONSUMED SPEAKER

When we apply these explorations of the inside and the outside, the revealed and the hidden, how do these themes intersect with speakers? A "speaker" can mean many things; it is at one time a body expressing itself and at another time a piece of consumer technology on the shelf at Target in the electronics aisle.

I often feel asked—metaphorically—to be the latter kind of speaker, not the former. We click buttons and sound appears inside the aluminum box of our smartphone. We press another button and the sound enters our ears through earbuds—a transactional, one-way experience of receiving, of being a consumer, of consuming. When we are reduced to the consumer, as argued by Mark Fisher, it can be difficult to imagine ourselves as anything *other*.[12] These systems stand against the self and assert conformity to existing systems of power.

For me, this standing-against-the-self means standing against the trans. When I consider opening the system, of exploring the inside of the sonic body, I want to celebrate the queer body, the female body. I want to invent new forms of technological bodies that are free, and that build new worlds of impossibility. I want to reimagine systems as creative play, a feminine force.

As a body, I take on these systems viscerally. It's in my guts, literally. Even my body as a trans woman has been transformed by preprocessed goods from the fine people at Wyeth Pharmaceuticals.[13] Control over the body for me has meant trying to come to terms with my dependence on technology and industry, while trying to find a way past these concerns.

How does my body consume or fail to consume this world as it is presented to us, how the system consumes or fails to consume the body?

THE SYSTEM DONE WRONG

The system itself can be turned into a body. It can be happy or sad, well-adjusted or sick. It can break down. It can feel existential malaise. People care about the well-being of the system; we feel the system as part of us, perhaps.

As a trans person, I find myself sometimes placed in opposition to systems. I make the system sick. I feel bad about this. I bear the system no grievance, except that I wish it weren't so damn stupid. This itself is more of a loving concern than a condemnation, though. Still, my gender proposition is poisonous to the body of the system. It cannot be broken down properly. It does not fit through the tubes. It clogs them and causes all kinds of secondary symptoms that are not fit to be spoken of in polite society.

A bureaucrat, feeling sadness for the failings of the system, once said to me in all earnestness, "How could the system get your name so wrong?" We shared a moment of somber silence, as we pondered the system's tragic undoing, its obliviousness to its own failings. The glorious system itself is mortal!

Then the bureaucrat, seeming to find a new thought, suddenly turned from the computer screen to look at me suspiciously. Could it really be that the system is more vulnerable even than me, flesh and bones? Perhaps—yes perhaps—it was not the system that was broken. It was me.

"Can I see your ID?" she asked.

THE IMPOSSIBLE BODY

So, let's open up the system.

In Figure 5 we have the inside out, the guts splayed, contended realities to not just see and hear but to explore. This work is a *Sound Tapestry* from my ongoing series (2013–present). *Sound Tapestries* use my technique of flat surface arrays of conductive foil with magnet attachments to generate sound, as described for *Reveal Party* except with magnets on the piece itself rather than in the stethoscope. Each tapestry is effectively a single-channel speaker. Composed of printed circuitry on a transparent mylar backing, the tapestry is a stand-in for a body at 4 feet by 18 inches.

The surface (see Fig. 6) is built up of repeated patterns, 2-D coils with space for small magnet attachments. Each "turn" of the coil (i.e., each repeat of the pattern) builds iterative sound across the surface of the tapestry. In this particular tapestry, the conductive material is a thin copper foil, though I have also used aluminum foils and alternative materials like foils with emulsion with fragrant soda powder from the dollar store.

The sound is planar and distributed—it provides a different kind of sound experience than a conventional speaker. There is not a transactional point source of sound, such as the speaker cone, but rather a field of sound. Not a reduced spot, but a built space.

These tapestries are translucent and transparent, a see-through into the background, maybe a wormhole into different dimensions, a portal to step through in a science-fiction fantasy. I make these surfaces as flat as can be in order to force a feeling of openness and dimensionless freedom. In this space, the impossible body can exist.

The tapestries act together to build sound space and sound bodies for installation and spatialization. Figure 7 shows an installation of these *Sound Tapestries* from a 2022 group exhibition, *Visual Record*, at the International Print Center in Chelsea, New York City.[14]

Audio current flows through these tapestries the way any current flows through a conductive loop. The tapestries themselves are held up by the input and output wire with alligator clips. The wire is run along the ceiling and into a back room where the loop originates from multichannel amplification.

In this particular installation, three single audio-channel tapestries combine to offer a spatialized three-channel soundscape. The choice of sound used in the exhibition is especially relevant to the conversation around the body and the feminine or trans

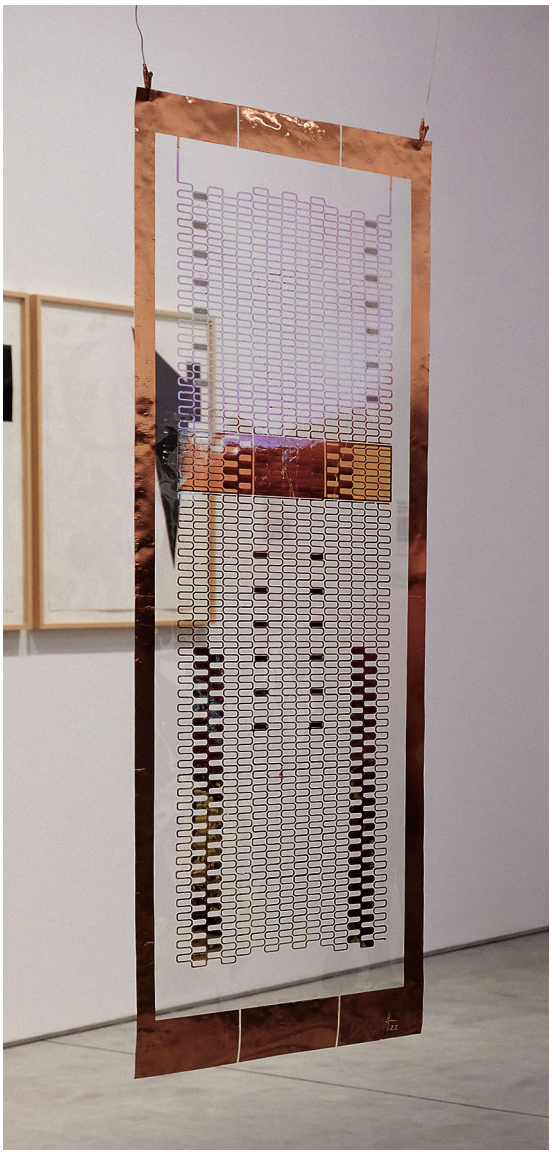

FIGURE 5. A *Sound Tapestry*. 4 ft. × 18 in., electromagnetically activated copper foil and magnet attachments. Courtesy Print Center New York. Photo by Argenis Apolinario.

feminine spirit. As stand-ins for the body, they represent one of three performers who play sounds through the tapestries: Susie Luna Green, Margaret Schedel, and myself, who performed and improvised together at the exhibition's opening night. Each performer used cell phone feedback, asemic vocalizations, prosodic nonsense, speaking into and around the tapestries, building persona and social space, creating a zone of celebration toward the Goddess of the Electromagnetic Spectrum. The entire gallery was an

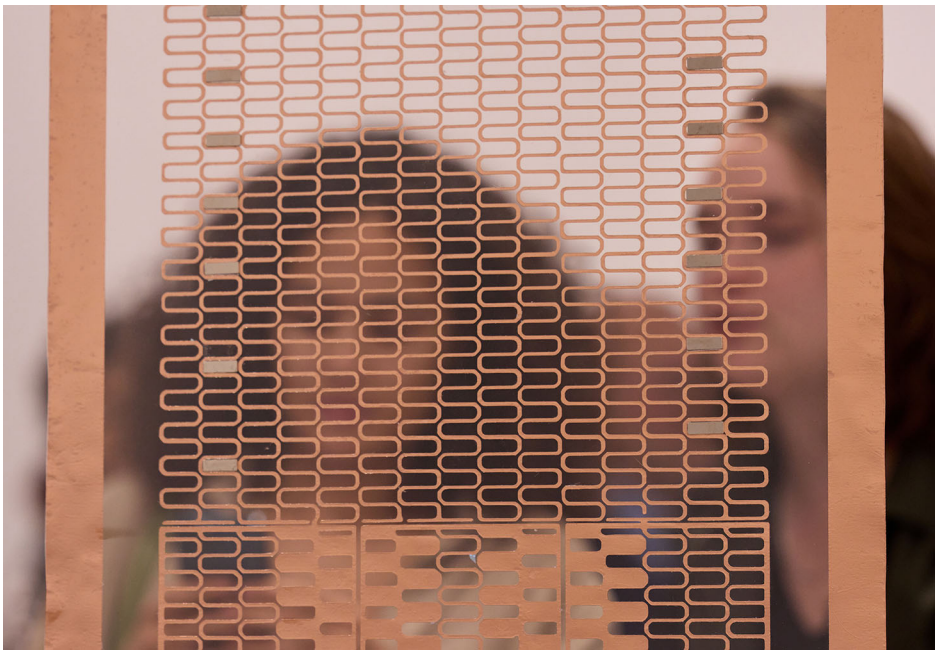

FIGURE 6. Detail of *Sound Tapestry* circuit design. Courtesy Print Center New York. Photo by Argenis Apolinario.

FIGURE 7. An installation of *Sound Tapestries* (foreground) at the *Visual Record* exhibition, Print Center New York, 2022. Each tapestry makes sound, and as a whole the installation is effectively a three-channel spatialized sound space. Courtesy Print Center New York. Photo by Argenis Apolinario.

instrument. The performers roamed the space seeking their own creative play, improvising off of each other and our technological beings in a processed unfolding of the space and bodies, both physical and temporal (Fig. 8).

FIGURE 8. Performance for the opening reception of *Visual Record* at the Print Center New York, October 7, 2022. Left to right: Meg Schedel, Susie Luna Green, Jess Rowland. Courtesy Print Center New York. Photo by Argenis Apolinario.

The three performers used wireless microphones to feed their various sounds into the tapestries. The tapestries for this performance were the source of amplification, and the generator of sound as resonant, iterating, reverberating bodies. In other words, they were both instrument and speaker. For the remaining duration of the three-month exhibit, the recording from each performer was re-cycled through the tapestries in absence of the actual performers' bodies—a sort of "tapestry of its own making."[15]

MUSIC FOR BODYSPACE

The sounds created by *Sound Tapestries* and *Reveal Party* are of a particular kind—they are activated space, an emergent phenomenon from surface and body. Theorists have devoted considerable effort to understanding and thinking through sound and space. Ouzounian makes the distinction between two different kinds of sound space: First, a traditional Cartesian sense of space—in the sound world, various forms of 3-D modeled sound spaces, wave field synthesis, and VR audio could be described as using space in this scientifically measurable context. (Architectural sound and acoustics could also be considered a marker of the space world of the x, y, and z). On the other hand, a second notion of sound space explores the more nuanced space of complication—relationships of the social, personal, and political between bodies.[16]

My work with generating sound from EM, for example in *Sound Tapestries* and *Reveal Party*, is another, connected kind of space. I aim to give these objects magic as unexpected

sources of voice, voice where no voice was before, voice where no voice is supposed to be, the space made magic by transformation, a queer space.

This transforming space is its own experience of space unique to the body. In this way, it is similar to concepts of the "body of light" or the "subtle body," fields thought to extend from the body that are not of the material but that emerge spiritually from it and are tied to it.[17]

This emergent body, what in my work I might describe as the body of sound—as an alternative to the body of light—is a particular form of sound space that is the domain and provenance of the electromagnetic spectrum. This spirit, a feminine power, works toward all possibilities and impossibilities. It allows for the queer body, for the nonconforming and open.

While this type of sound space is present in both *Reveal Party* and *Sound Tapestries*, this space of magical sound emergence is most explicitly explored in a third project, *Music for Bodyspace*, a spatialized sound installation for an individual body. It was created using my technique for foils and visual design to carry the sound, as in the other works presented here. *Music for Bodyspace,* though, is a wearable art piece. It is a four-channel installation consisting of two earrings, one necklace, and one bracelet, each of which is a sound-making device. Effectively, a participant wears this four-channel spatialized installation, and the sound itself is built and designed for the body.

In Figure 9 we see some of the individual elements of *Music for Bodyspace*. Each piece is a wireless audio speaker, with the guts of a wireless receiver and audio amplifier built inside. It would have been possible to create these devices with standard wireless speakers, but I wanted to maintain the aesthetic focus of the circuitry surface and the magnets, and so each piece is a small version of a *Sound Tapestry*, just built into a wearable structure for the body.

Music for Bodyspace is an art piece, then, that can only be experienced directly. To be recorded for screens or playback would be to lose the bodily, physical experience. The essence

FIGURE 9. Audio jewelry pieces for *Music for Body Space*. **a.** Stereo-pair earrings. **b.** Necklace. All pieces are one-channel audio speakers, copper foil on Mylar with embedded wireless electronics. Courtesy the artist.

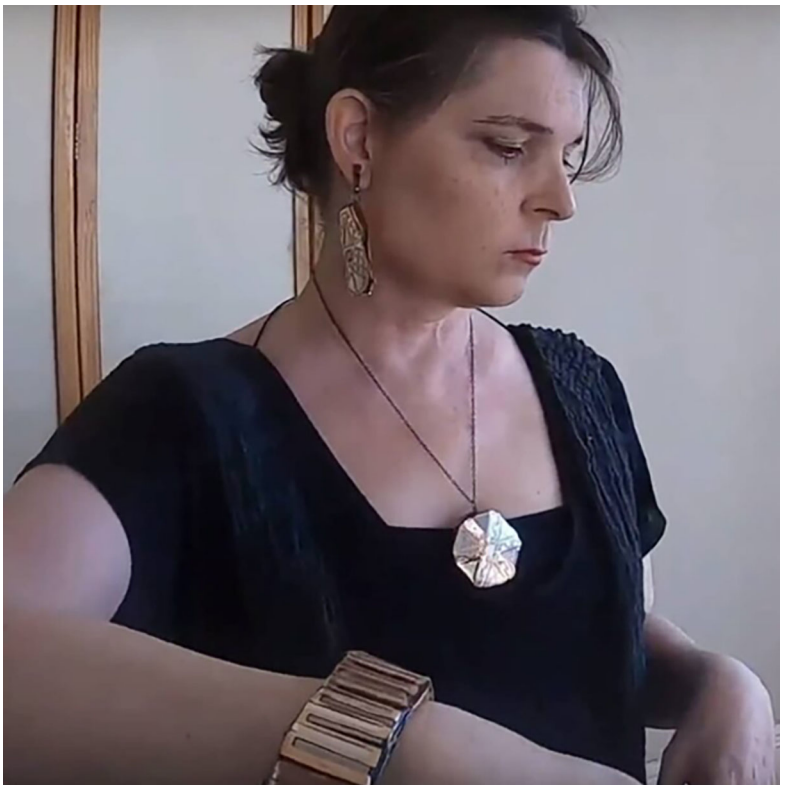

FIGURE 10. Video still from a performance of *Music for Bodyspace*. Still from video, videography by Colleen Nagle.

of the work is unclickable and unlikeable; it cannot be transmitted through the wires or the cell phone towers or the satellites. It is purely and only for the individual who wears the audio jewelry, with sound coming from a space around, but not on, the ear, from near the heart chakra and at the wrists. To activate this sound space is to move the body.

Figure 10 shows the author wearing and activating this very particular kind of space, as part of a performance.[18] The music I composed for this performance of *Music for Bodyspace* can be heard in two-channel mixdown (Fig. 11).

SONIC EM

As a creative journey into sonic electromagnetism, my practice is just one of many directions to take on this new map. Where we see labels and boundaries and division, EM sound has a way of confounding them all, and challenging any simple solution or perspective. I would like my work to be part of a project to open possibilities for creative futures, and a challenge to imposed systems.

The EM spirit lies at these boundaries where we lose track of what came from what, at that moment when we lose track of the linear and explainable and break all their demands for rationality. Instead of delineation and reduction, we have the electromagnetic field to

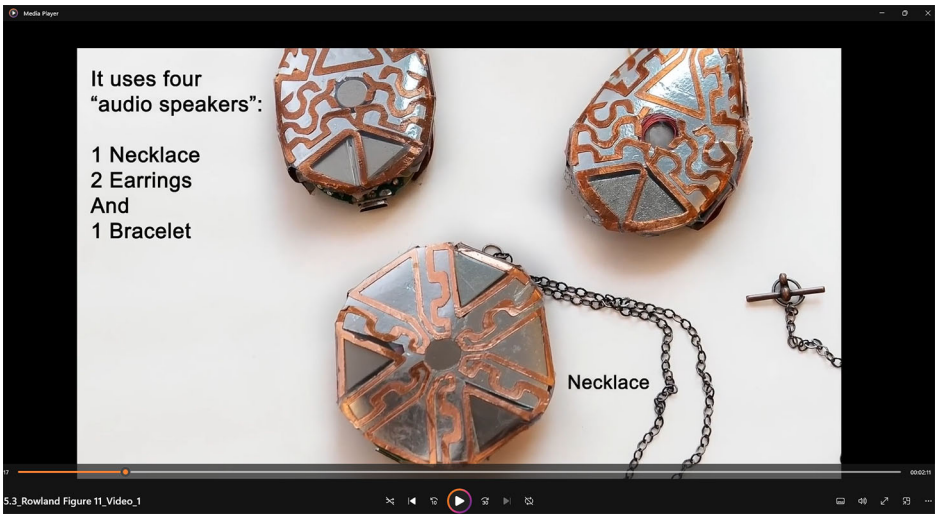

FIGURE 11. *Music for Bodyspace* by Jess Rowland: https://vimeo.com/883576599. (Video file.)

contend with, a wily spirit for the seeker in an inevitably technological age. EM cannot be owned or labeled or commodified. It offers us a way through, and a way to break, the systems that try to keep us passive. ■

JESS ROWLAND is a NYC-based artist, musician, and composer. She is also an educator and advocate for new music who has taught at Princeton University, UC Berkeley, and the School of Visual Arts NYC. A former Arts Fellow at Princeton's Lewis Center for the Arts, she has published in a wide range of peer-reviewed journals of auditory neuroscience, audio engineering, and the arts. She currently maintains an active art practice and has shown, performed, and presented work internationally. She received an MFA in art practice from UC Berkeley, where she was actively involved in developing flexible circuitry techniques at the Center for New Music and Audio Technologies.

NOTES

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2. Technical details about my technique building EM fields—such as in *Reveal Party*, using conductive foils and printed circuits—can be found in my previous writing: Jess Rowland, “Flexible Audio for Composition and Art Practice,” *Leonardo Music Journal*, no. 23, special issue on sound art (2013).
3. Sofy Yuditskaya interviews Jess Rowland, “The Electromagnetic Goddess,” *Creatrix Magazine*,” November 14, 2021, https://creatrixmag.com/the-electromagnetic-goddess/ (accessed March 3, 2024).
4. Christina Kubisch, “Electrical Walks,” https://christinakubisch.de/electrical-walks (accessed March 3, 2024).
5. Adrian Freed, “Sound, Vibration, and Retroaction in Deformable Displays” (SIGCHI Workshop, Organic Experiences: (Re)shaping Interactions with Deformable Displays, Paris, 2013); Adrian Freed and Jess Rowland, “Co-located Surface Sound Interaction,” *Proceedings of the ACM Conference on Human-Computer Interaction*. Paris, 2013.
6. Much of Freed's work on embedded circuitry and EM extends the pioneering work of Hannah Perner-Wilson, who studied forms of paper speaker building using foils and plotter cutters as

a way to break open the black box of technology for inspection: Hannah Perner-Wilson, "A Kit-of-No-Parts" (master's thesis, MIT, June 2011).

7. Gascia Ouzounian, "Embodied Sound: Aural Architectures and the Body," *Contemporary Music Review* 25, no. 1–2 (2006): 69–79.
8. Radio Amatrices, *FemSat: Propositions for Feminism in Radiophonic Space*, *MONDAY* vol. 6, "Lux Aeterna," 51. https://monday-journal.com/femsat-propositions-for-feminism-in-radiophonic-space/ (accessed March 3, 2024).
9. See https://afroditipsarra.com/.
10. See Scot Gresham-Lancaster in discussion with L. Alexis Emelianoff, "L. Alexis Emelianoff: Composer and Performer, Sound of the Ether, Sounding Electrical Fields," *Sound and Data*, January 12, 2015, https://sonification.net/SoundData/Alexis-post.html (accessed March 3, 2024).
11. For an archive of our performances, see https://www.yuditskaya.com/music/emkvlt.
12. Mark Fisher, *Capitalist Realism* (Alresford, Hampshire, UK: Zero Books, 2009).
13. I refer here to hormone pills, but consider, perhaps, your own medicine cabinet.
14. "Visual Record: The Materiality of Sound in Print," Print Center New York (2022), https://issuu.com/ipcny/docs/visual_record_singles_wcover_221015 (accessed March 3, 2024).
15. I'm referencing "A Box with the Sound of Its Own Making," by Robert Morris. See: https://www.metmuseum.org/art/collection/search/689665.
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