

Press Release

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Experiencing bioelectronics as an intersection between science, art, and design

Interactive exhibition turns neuronal communication into a physical experience

A new way to experience bioelectronics created by the union of applied research and media art: Somatic Circuits is an artwork by media artist Marlot Meyer, Fraunhofer IZM, and the curator Pierre Wolter (Gallery Art Claims Impulse) that turns communication via biological signals into a physical and aesthetical experience. The installation is made possible by flexible wearables created by the artist using technologies developed by the research group "Technologies for Bioelectronics," bringing together sound, touch, and bodily perception in a multi-sensory network. The interactive art and science installation will premiere from 2 to 4 July at the Festival of the Future in Munich.

The inflatable sculptures by artist Marlot Meyer are large, colourful and they offer visitors a playful introduction to the topics of the brain, neural networks, human communication, and embodied body awareness. At the heart of the installation are complex, wearable "balloons", each representing one neuron. As soon as a visitor interacts with a sculpture, they become active elements of a living neural network: Their breathing, movements, and sound signals become part of their interaction with other visitors.

The interactions of the visitors are translated by technology: The rate and intensity of their breathing are converted into directional sound waves that are captured by a "listener" with a microphone and translates in turn into electrical impulses. Flexible electrodes on the visitors' hands let the other person feel these impulses. The result is a multi-sensory communication system, as the visitors do not only perceive the signals given off by their peers, but can even feel the rate of their breathing on their bodies - but only if their bodies are aligned with the directional sound waves transmitted by the other person.

At the center of the exhibit, a water-filled sculpture represents the "central neuron" of the installation. The audio signals given off by the visitors control a subwoofer speaker that creates standing waves on the water's surface, making the network's collective activity visible.

Flexible wearables turn bioelectronics into a tangible experience

The immersive experience is made possible through flexible wearables developed by researchers at the Fraunhofer Institute for Reliability and Microintegration IZM. The Institute's working group "Technologies for Bioelectronics" works on flexible neural interfaces that can be used as an alternative or addition to pharmaceutical therapies for the nervous system. Bioelectronic

systems like those developed by the researchers are already being used, for example, in cochlear implants, where sound is converted into electrical signals that are then transmitted directly to the nervous system to restore lost sensory functions.

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In their day-to-day work, the researchers are working on so-called cuff electrodes made from biocompatible materials like polyurethane. These cuffs are implanted directly on the nerves, and the flexible polymers are made from adapt particularly well to biological tissue for a more comfortable experience. In addition to stimulating nerves with electricity, the researchers are exploring the effect of ultrasound on activating the nervous system, as high-frequency ultrasound waves can specifically influence nerve cells.

For the interdisciplinary Somatic Circuits project, the team has adapted its technology to make it work non-invasively for the first time - directly on the wearer's skin. This makes their important medical technology research and its applications more accessible to the wider public.

Experiencing neural communication with all senses

The installation uses a basic principle of how nerves transmit information: in the human nervous system, communication is multimodal - electrically via action potentials and chemically via neurotransmitters. Somatic Circuits brings this principle into the exhibition and combines electrical, acoustic, and ultrasound signals in one shared experience.

Co-creating the installation

Media artist Marlot Meyer believes: "Art and science often take different directions in their unique ways of working. Harmony and mutual comprehension are not always part for the course. This makes it only more exciting when both fields come together as partners to go down new paths together."

The project is unique for its close partnership between the researchers, the artist, and the curator. The installation was born from all sides engaging with each other in workshops, visiting each other in the lab or the studio, or conducting experiments together. This approach reflects the core themes of the project: communication, connection, and collective interaction. As both sides 'clicked', an installation was born that is both technologically sophisticated and an aesthetic and engaging experience for all senses.

The project wants to share insights about bioelectronics, alleviate people's worries and reservations, and open up new vistas for how the body, technology, and society can interact. The exhibition is meant for anybody interested in and open to art and science, including people from industry and academia. Somatic Circuits is Fraunhofer IZM's, Marlot Meyer's, and the gallery Art Claims Impulse's contribution to art and science communication, a creative window into the world of bioelectronics and a way for people to explore and experience the natural sciences in a multi-sensory, interactive form. The project is supported by the Fraunhofer network for "Science, Art, and Design (WKD)".

Opening at the Festival of the Future from 2 to 4 July 2026

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The first prototypes of the interactive artwork Somatic Circuits will be open to the public for the first time at the Festival of the Future, hosted in Munich from 2 to 4 July 2026. Visitors are encouraged to become part of the neural network and experience the union of movement, sound, and technology for themselves.

Somatic Circuits: <https://somatic-circuits.com>

(Text: Lotta Jahnke)



Fraunhofer researchers working on bioelectronics, ultrasound wearables, and sustainable design brainstorming with curator Pierre Wolter and artist Marlot Meyer in her studio in The Hague. © Marlot Meyer



AI-generated sketch of the installation "Somatic-Circuits"



First Impressions of the interactive wearables. © Marlot Meyer

The **Fraunhofer-Gesellschaft**, headquartered in Germany, is one of the world's leading organizations for applied research. Founded in 1949, the Fraunhofer-Gesellschaft currently operates 75 institutes and research units throughout Germany. Its nearly 32,000 employees, predominantly scientists and engineers, work with an annual business volume of 3.6 billion euros; 3.1 billion euros of this stems from contract research.

The **Fraunhofer Institute for Reliability and Microintegration IZM** is one of the world's premier research institutions for electronics packaging. With its dedication to developing miniaturized, high-reliability electronics in cutting-edge lab facilities, the institute works to maintain the competitive edge of Germany and Europe.

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