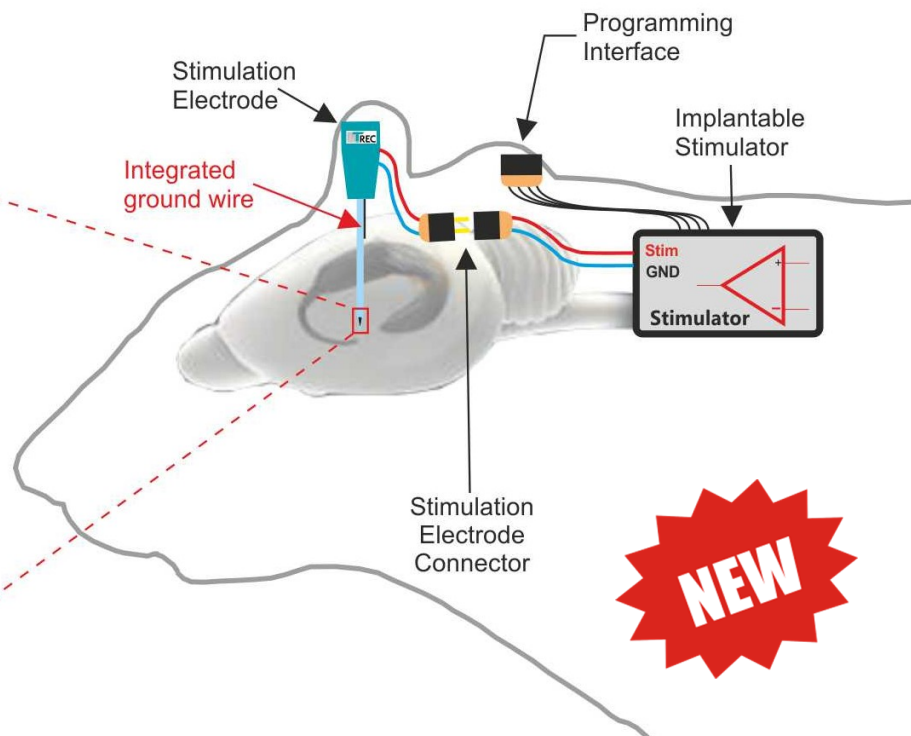
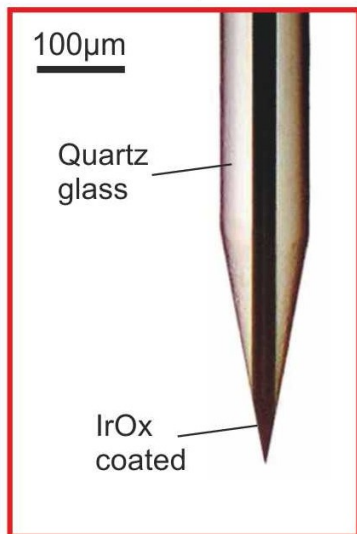




Stimulation Electrode Tip



Thomas RECORDING GmbH

Thomas wireless DBS System

Thomas RECORDING offers a novel wireless stimulation system for deep brain stimulation (DBS) tailored for rodents. Our **I**mplantable **M**icro **S**timulation (IMS) System is a standardized wearable microstimulation system suitable for translational DBS research in freely moving animals.

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A. Grotemeyer, T. Petschner, R. Peach, D. Hoehl, T. Knauer, U. Thomas, H. Endres, R. Blum, M. Sendtner, J. Volkmann, C.W. Ip

[Standardized wireless deep brain stimulation system for mice](#)

npj parkinson's disease 10(1) 2024 153

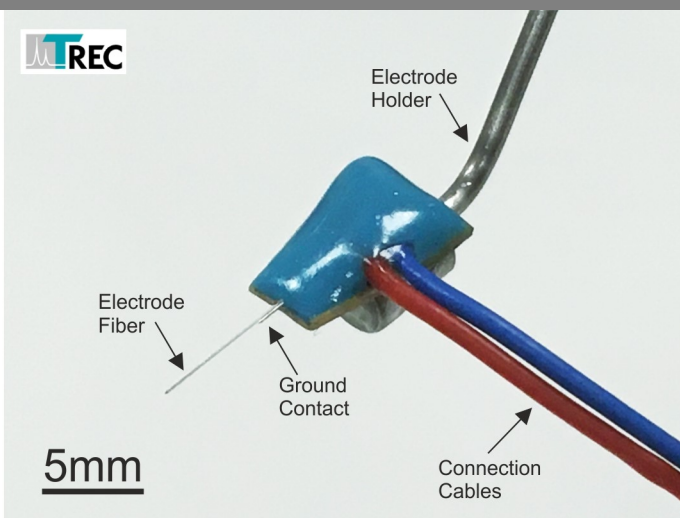
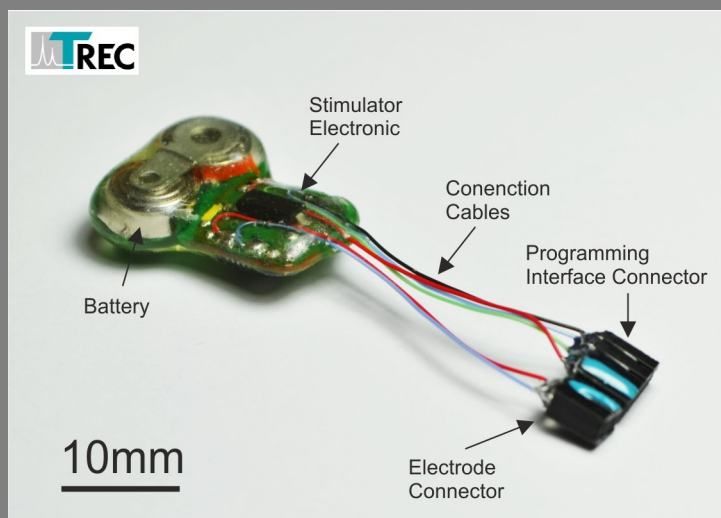


Figure 1: Thomas implantable wireless DBS stimulator with integrated batteries and connection cables with connectors for programming interface and stimulation microelectrode connection. The stimulator has a medical grade housing. For details see: A. Grotemeyer, T. Petschner, R. Peach, D. Hoehl, T. Knauer, U. Thomas, H. Endres, R. Blum, M. Sendtner, J. Volkmann, C.W. Ip; **Standardized wireless deep brain stimulation system for mice;** npj parkinson's disease 10(1) 2024 153

Figure 2: Thomas implantable stimulation electrode with implantation electrode holder. This holder will be removed as soon as the electrode is fixed to the animal's skull. The stimulation microelectrode shaft has an outer diameter of app. 100µm. The tip is coated with iridium-oxide for high charge transfer. A ground electrode is located parallel to the stimulation electrode. An additional ground screw is not necessary. The connection cables are available in a thicker version (see photo above) and a thinner version.

- Implantable **miniaturized stimulator** and **microelectrodes**, tailored for rodents
- **Rigorous standardization** of the system **minimizes the risk** of adverse outcomes
- **Constant current** stimulation generator
- Small size and light weight **reduce the surgical burden on the animals**
- **Small fiber electrode tip dimensions** with low impedance and **high charge-transfer capacity**
- Stimulator is **re-programmable by the user** before and after implantation
- Two basic **stimulation patterns** are available: **continuous** (standard) or **burst stimulation** (optional)
- **Many stimulus parameters** are programmable (e.g. current amplitude, pulse width, frequency)
- Stimulator is **switched easily ON/OFF** with a magnet through the animal's fur
- Stimulator **operation mode is indicated by a bright LED** shining through the animal's fur
- **Easy electrode implantation** by use of a special designed electrode holder
- Stimulation electrode with **integrated ground wire**, no additional ground screw required
- Combined implantation of stimulator and electrodes ensure **high mobility of the animal**
- **No restraining of the animal** with tethered cables necessary like in cable bound stimulation systems
- **Numerous options** and accessories are available to accommodate your research needs. Please consult the TREC website or speak with a member of the TREC team about your specific requirements!