

# PRESS RELEASE

PRESS RELEASE

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## **Fraunhofer ENAS presents a rapid virus test for the detection of the SARS-CoV-2 virus and an electronic wound patch to stimulate healing processes at virtual.COMPAMED 2020**

**Get a proof of infection with the SARS-CoV-2 virus or of immunity to the virus within one hour. Accelerate healing processes with electrical stimulation through an active wound patch. Fraunhofer ENAS will present these and other topics for the first time from November 16-19 at the digital medical technology trade fair virtual.COMPAMED 2020.**

At this year's digital medical trade fair virtual.COMPAMED, the Fraunhofer Institute for Electronic Nano Systems ENAS will be presenting, among other things, projects designed to help contain the current CORONA pandemic. Visitors to virtual.COMPA-MED can obtain information online at the exhibitor portal and can enter into discussions with the experts live via chat or video call at the trade fair platform [www.compamed.de](http://www.compamed.de) from November 16–19, 2020.

### **Test system for rapid SARS-CoV-2 virus detection**

The Fraunhofer-Gesellschaft has initiated a number of projects with the action program »Fraunhofer vs. Corona«, which are intended to help fight against the current pandemic. At virtual.COMPAMED, Fraunhofer ENAS will present one of these projects under the title »CovMoTe«. Since the high infectivity of the SARS-CoV-2 virus exceeds the current capacities of the available test resources for direct virus detection, the search is on for methods that provide a fast and detailed picture of the infection status. In the joint Fraunhofer project CovMoTe, Fraunhofer ENAS is working together with the Fraunhofer Institutes IME, ISIT, IBMT and EMFT on the development of a mobile combined test system for the sustained acceleration of the SARS-CoV-2 virus detection and the proof of existing immunity. The use of highly innovative techniques (neo-LAMP, electronic biochips) enables a test result within one hour for virus RNA detection. The addition of the immunity status to the test also allows a comprehensive assessment of the infection status. Fraunhofer ENAS, together with Fraunhofer ISIT, enables the decentralized performance of virus and immune detection by transferring the assay to their microfluidic platform.

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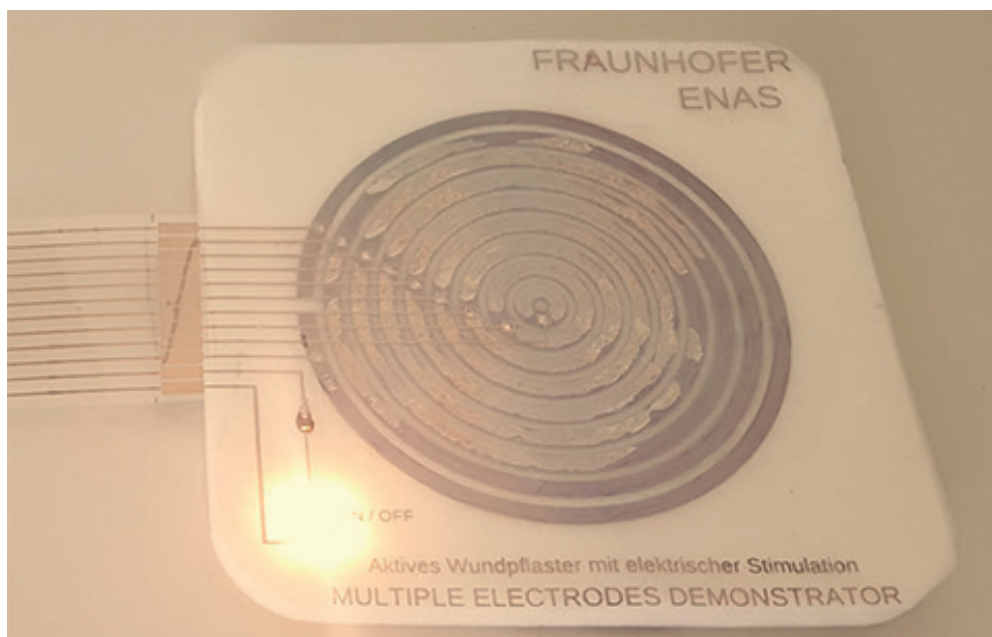
FRAUNHOFER INSTITUTE FOR ELECTRONIC NANO SYSTEMS ENAS

### Active electronic wound patch for stimulating cells

Besides other CORONA-related projects, the institute presents developments in the field of micro sensor and actuator technology for medical technology, microfluidic systems, materials for medical products and wearables. For active wound plasters with electrical stimulation, Fraunhofer ENAS developed special coating processes and material combinations for the production of robust electrically conductive electrodes on flexible substrates. Simulation models for calculating the electric field strengths in heterogeneous dielectric ambient conditions were also developed. The integration of biocompatible electrode structures in wound dressings in combination with a corresponding activation and application of voltage actively influenced the cells during the healing process.

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Active wound plaster (Photo © Fraunhofer ENAS)

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The **Fraunhofer-Gesellschaft**, headquartered in Germany, is the world's leading applied research organization. With its focus on developing key technologies that are vital for the future and enabling the commercial exploitation of this work by business and industry, Fraunhofer plays a central role in the innovation process. As a pioneer and catalyst for groundbreaking developments and scientific excellence, Fraunhofer helps shape society now and in the future. Founded in 1949, the Fraunhofer-Gesellschaft currently operates 74 institutes and research institutions throughout Germany. The majority of the organization's 28,000 employees are qualified scientists and engineers, who work with an annual research budget of 2.8 billion euros. Of this sum, 2.3 billion euros is generated through contract research.

FRAUNHOFER INSTITUTE FOR ELECTRONIC NANO SYSTEMS ENAS

### Wireless power transmission for measurement technology in bioreactors

In the field of measurement technology and analytics, the institute presents the »Sens-o-Spheres« measurement system, a joint development of TU Dresden, SAAS GmbH, e-nema GmbH, IMST GmbH, Ökoplast GmbH and Fraunhofer ENAS, funded by the BMBF. The system records process parameters in bioreactors using measuring spheres. In a sub-project, Fraunhofer ENAS developed a communication system specially optimized for the inside of the spheres and an interface for wireless energy transmission for recharging the batteries independent of their position. In combination with an intelligent control of each energy-transmitting coil, a high charging coverage for the complex system could be achieved for the simultaneous charging of several sensors.

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**Measuring sphere from the  
Sens-o-Spheres project  
(Photo © TU Dresden)**

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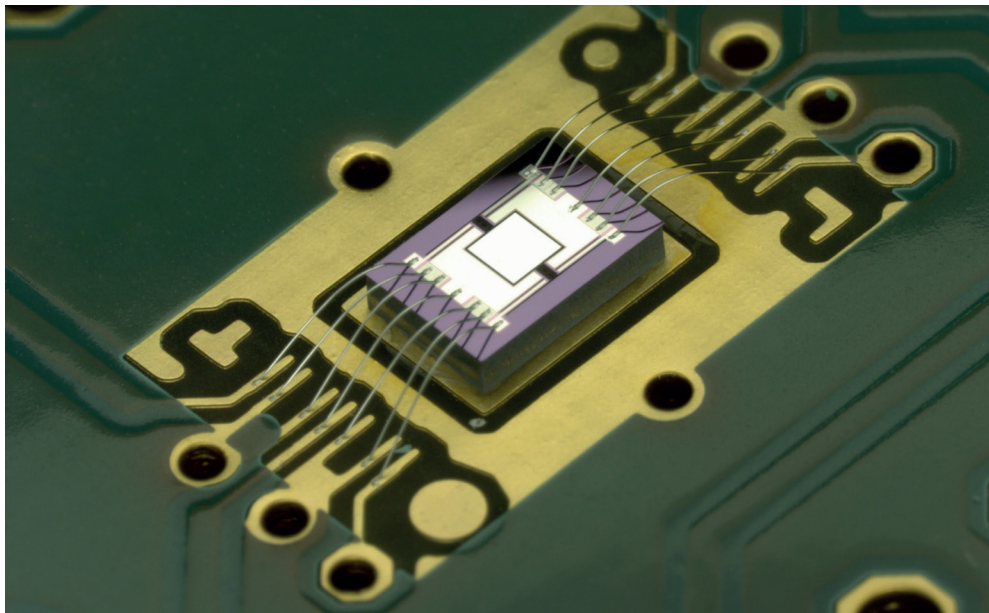
The **Fraunhofer Institute for Electronic Nano Systems ENAS** is the specialist and development partner in the field of Smart Systems and their integration for various applications. Fraunhofer ENAS has specialized on the challenge of combining micro and nano sensors, actuators and electronic components with interfaces for communication and a self-sufficient energy supply to form smart systems, thus supporting the Internet of Things and the ongoing digitalization. The institute develops single components, manufacturing technologies and system concepts, system integration technologies and actively supports the technology transfer for and with its customers. It offers innovation consulting and supports customer projects, starting from the idea, via design and technology development or realization based on established technologies up to tested prototypes.

### Materials for medical devices and implants

Another focus of the presentation is on materials used for micro sensors, actuators and for encapsulating systems. Fraunhofer ENAS develops microsystems based on the piezoelectric material aluminum nitride (AlN). As actuator and sensor material, AlN offers the possibility of a high degree of miniaturization to enable the further development of micro scanners for high-precision endoscopic systems. For biocompatible encapsulation, Fraunhofer ENAS relies on the polymer material Parylene. The institute develops processes for the deposition of different types of Parylene for high-quality thin-film encapsulation of medical implants, MEMS and organic electronics. The Parylene layers are characterized by high conformity, biocompatibility according to ISO 10993, chemical inertness and optical transparency and are free of internal mechanical stress.

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AlN-based 1D micro scanner with integrated position sensor. (Photo © Fraunhofer ENAS)

These and further developments can be found online on the internet portal [www.compamed.de](http://www.compamed.de). With a free registration, visitors of virtual.COMPAMED can also attend live presentations and enter into direct discussions with the experts in the matchmaking portal from November 16–19, 2020.

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