

# PRESS RELEASE

19 | 18

PRESS RELEASE

September 28, 2018 | Page 1 / 2

## Scientists of the Fraunhofer FEP participate in the CeTI Cluster of Excellence ([www.ceti.one](http://www.ceti.one))

**After the announcement of the positive decision for the cluster of Excellence CeTI (Center for Tactile Internet with Human-in-the-Loop) of the Technische Universität Dresden (TUD), the scientists of the Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP in Dresden are also pleased about new opportunities for research and development of solutions for efficient cooperation between human and human as well as humans and machine. With more than 10 years of experience in manufacturing of OLED microdisplays, the research institute will contribute to the development of mobile displays with multimodal feedback.**

Almost exactly one year ago the announcement was made that six of the eight project outlines for the Excellence Initiative of the Technische Universität Dresden had been invited to submit full proposals. After a second round, a decision was made on 27 September 2018. Now for the second time, the celebration is huge. The science location Dresden with the Technical University at the lead and further project partners, including the Fraunhofer FEP, was awarded the contract for three of the six submitted project outlines. The decision for at least two outlines paves the way for the Dresden University of Technology to reapply as a university of excellence. The Fraunhofer FEP is partner in the successful CeTI project proposal - a Center for Tactile Internet with Human-in-the-Loop.

The aim of the CeTI is to promote efficient cooperation between people, as well as between people and machines. A future application is the co-working of man and machine with mutual learning. This interaction between cyber-physical systems (CPS) and people aims to take place in the real or virtual world in real time.

For this purpose, both new communication technologies to support real time and the understanding of the human body and its ability to react are necessary. These approaches go far beyond the current state of the art in IT and engineering sciences. Challenges are the necessary intelligent networks and adaptive CPS. To meet these challenges, CeTI will establish unique interdisciplinary research and make key contributions in key areas of human control in man-machine cooperation, sensor/actuator technologies, software and hardware design, and communication networks. These serve as the basis for several new applications in medicine, industry and the Internet of Competence.

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With this decision, the starting signal is now given for the consortia that can start their work at the beginning of 2019. A hierarchy of 12 Virtual Research Rooms (VRRs) has been planned for CeTI, within which all participants on three levels contribute their expertise to the success of the project and network with each other.

Dr. Uwe Vogel, deputy director and head of the Microdisplays and Sensors business unit, explains the role of the Fraunhofer FEP: "Tactile Internet with Human in the Loop relies on proper I/O devices: ultra-low power and low-latency OLED micro-displays in wearable near-to-eye displays ('eyeables') are a key component for it, e. g., in AR and VR glasses. Fraunhofer FEP's experience in R&D and industrial transfer of micro-display technology and devices, and their incorporation into smart eyewear solutions will specifically help CeTI to achieve the overall 1 ms latency target - therefore I am keen to participate in this exciting project and consortium!"

For the first time, a new backplane concept for OLED microdisplays is to be implemented at the Fraunhofer FEP, which works with CMOS backplane processes in very advanced technology nodes (deep sub-micron). This allows the development of high resolution microdisplays with very low latency and low power consumption. The scientists are now inspired by the positive award and pleased to be able to contribute an essential component for CeTI through the development of a new microdisplay architecture as well as cooperation with scientists from various TUD faculties (e. g. electrical engineering, computer science, medicine, natural sciences).

**Technical design**

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The **Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology FEP** works on innovative solutions in the fields of vacuum coating, surface treatment as well as organic semiconductors. The core competences electron beam technology, sputtering and plasma-activated deposition, high-rate PECVD as well as technologies for the organic electronics and IC/system design provide a basis for these activities. Thus, Fraunhofer FEP offers a wide range of possibilities for research, development and pilot production, especially for the processing, sterilization, structuring and refining of surfaces as well as OLED microdisplays, organic and inorganic sensors, optical filters and flexible OLED lighting. Our aim is to seize the innovation potential of the electron beam, plasma technology and organic electronics for new production processes and devices and to make it available for our customers.