

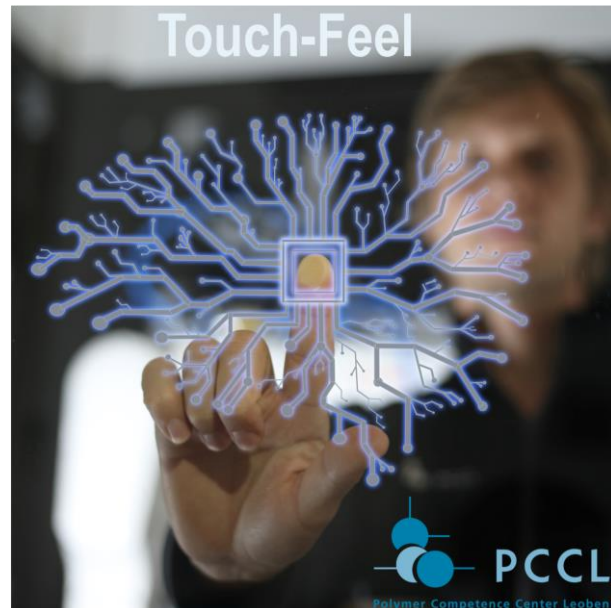
PCCL-K1

K1-Center in Polymer Engineering and Science

Programme: COMET – Competence Centers for Excellent Technologies

Programme line: COMET-centre

Type of project: Engineering and full characterization of polymer based haptic materials, 2017-2020. strategic



FIRST COMPLETE METROLOGICAL EVALUATION OF HAPTIC SURFACE PROPERTIES

In this research project, it was possible to comprehensively clarify the connection between the human tactile perception of surfaces, and the triggering material and surface properties for the first time. Knowledge of these relationships opens up a wide range of possibilities for the targeted optimisation of the tactile effect of product surfaces and their manufacturing processes.

The industry is looking for the right "touch feel" of products, i.e. the right tactile impression . The product range spans from gloves and sports equipment to consumer electronics, care products and many more. A milestone of the project was the realization of a measuring stand that can simultaneously and precisely record the interaction parameters relevant to haptics, for example between a human finger and a material surface. This makes it possible to bring the subjective tactile feeling to a

measurable parameter level. This technology is generating a wide range of effects in industry.

Previously, without knowledge of the material parameters relevant for tactile perception, the optimization of a product's "touch-feel" was a time-consuming process with many unclear factors and, consequently, an uncertain outcome. With the PCCL measuring system, this has now changed decisively.

Impact and effects

The new technology not only offers competitive advantages through the economic improvement of the haptic properties of high-quality products, but also promotes the improvement of the ecological footprint of these products, e.g., in the form of improved recyclability. Due to the correlation created between perception and material properties, more

SUCCESS STORY

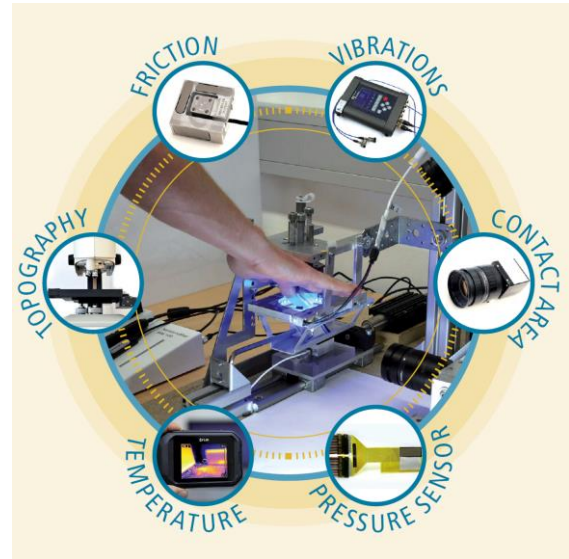
environmentally friendly materials can be specifically developed and used in haptically relevant high-quality products. At the same time, less expensive materials can be used, and thus the added value can be further increased.

In order to further extend the benefits of this new technology to several areas of industry and use cases, research was conducted on a method that does not require measurements with human test subjects for the evaluation of tactile surface effects. For this purpose, an artificial finger equipped with sensors was developed, which resembles a human finger in its mechanical properties and surface structure, but enables efficient and reproducible measurement of the relevant parameters for predicting the tactile impression of a surface.

The developed methodology enables a fundamentally new, efficient and economical improvement of the "haptics" of product surfaces. The topic is of great interest to the manufacturing industry. As a result, a FFG bridge project and a number of commissioned

projects from industry have already been attracted on the basis of this strategic project.

Industrial companies from several European countries have already expressed their interest.



PCCL measurement set-up for recording the haptic surface properties of products (Figure by PCCL)

Project coordination (Story)

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Project partner

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