Materials Science going Life Science - New Tactile Materials for the Future of Haptic Communication

Initiative: Kurswechsel – Forschungsneuland zwischen den Lebenswissenschaften und Natur- oder Technikwissenschaften

Ausschreibung: Qualifizierungskonzepte

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Laufzeit: 4 Jahre

Haptic perception is neglected compared to visual communication in the omnipresent digital technologies. Materials sciences face the challenge to engineer surfaces with dedicated haptic appeal and tactile communication prospects. It is proposed to study the complex perception of materials by touch through physiological and psychophysical experiments using dedicated tactile materials. The materials are defined by an adjustable microstructure and surface energy. These parameter allow to control friction fluctuations in the sliding skin contact which are suggested as key element in haptic perception and thus in the design of tactile materials. The project will widen the group's approach through close collaboration with life science groups specializing in skin physiology, neural processing of touch, and psychology of perception. The results obtained will contribute materials aspects to a user-experience design of interfaces which build on human haptic perception.

Projektbeteiligte

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Open Access-Publikationen

Perception of Friction in Tactile Exploration of Micro-structured Rubber Samples
Fingertip Friction and Tactile Rating of Wrapping Papers
Human glabrous skin contains crystallized urea dendriform structures in the stratum corneum which affect the hydration levels
Revealing the Meissner Corpuscles in Human Glabrous Skin Using In Vivo Non-Invasive Imaging Techniques