



University  
of Basel

Department of  
Biomedical Engineering

# Focal Area Biomechanics & Biomaterials



Two researchers of the Biomaterials Science Center at the polymer station  
(picture: D. Ettlin)



Soft plasmonic nanosensor (picture: T. Töpfer)

**The Focal Area Biomechanics & Biomaterials hosts a spectrum of research groups reaching from movement analysis to artificial tissue. All these efforts aim at a new image of the healthy and pathological human body based on the firm ground of the laws of physics.**

By developing new technologies like biosensors and big data tools for movement analysis, DBE researchers are creating the very basis of patient specific and therefore substantially enhanced treatment of many bone and joint diseases. Other groups are investigating the possibilities of artificial tissue, both mechanically manufactured and 3D printed. These technologies allow for better materials, coating and fixing technologies for implants. Further, this focal area aims for the virtual patient an individualized, patient specific assembly of data for tailored treatment, which we consider as the future of medical treatment. Anonymized, these data sets can be used to teach students how to perform diagnosis and how to plan a treatment or an operation. They also serve for longitudinal studies, in which the characteristics of a pathology and the effect of a treatment can be studied over an extended time period.

In June 2019 the Focal Area Biomechanics & Biomaterials consists of seven research groups with more than 30 researchers. Most of them are located at DBE in Allschwil and at the University Hospital Basel, thus reinforcing the intricate translational relation between these two institutions and ensuring the applicability of our research output.

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