

**28th June 2018, 15:00 s.t.**

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**AG Physics of Surfaces and Interfaces**

## **Scanning Ion Conductance Microscopy on Osteoblasts with regard to their Adhesion on Surfaces**

In recent years there is a growing need for reliable and biocompatible bone implants. However there are still unsolved issues e.g. poorly ingrowing implants resulting in revision surgeries and thus additional pain for patients. To improve future implants there is a need to understand the mechanism of cell adhesion and migration of human osteoblasts which are crucial for the formation of bone tissue. Ideally one could control the behaviour of cells, guiding them to the implant-bone interface, where they are needed for bone ingrowth. We aim at elucidating mechanisms of cell adhesion and migration of human osteoblasts (MG-63 cell line) on material surfaces particularly under the effect of external electric fields, including optical near fields. Our main approach is Scanning Ion Conductance Microscopy (SICM), which uses a nanopipette as a probe and the ion current serves as a localized interaction signal. In contrast to other scanning probe methods like Atomic Force Microscopy (AFM) it allows one to obtain the nanomorphology of the membrane surface of living cells with vastly reduced forces between cell and nanoprobe, thus essentially preserving native cell responses.

In my talk I will give an overview about the project and show first data of the nanomorphology of adhered Osteoblasts.

Talk: English

Slides: English

**Location:** Institute of Physics, Albert-Einstein-Str. 24, HS 1