

## AKTIO - Active control of implant surfaces

Implants are increasingly being used as an interface to the nervous system in various applications. They are becoming smaller and smaller and achieving better resolution. The interaction between cells and technical surfaces of the implants is influenced by parameters such as surface structure, mechanical properties, surface charge and chemical properties of the surface.

In order to achieve better wound healing, the project is researching the adaptation of the surface properties of implants to the various phases of wound healing. To this end, the surfaces of an implant are coated with electrically controllable macromolecules (Nanostructuring - Saumer Group) and exposed to electric fields. Finally, it is investigated how the cells are influenced by these surface changes (Immune cell model - Bufer Group).

The results will be used to adapt the surface properties of an implant to the different phases of wound healing.

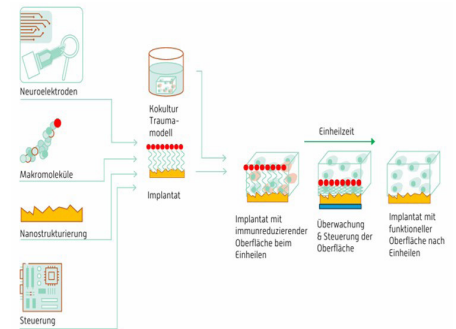


Figure 1: Schematic representation of the life cycles of the implant surfaces

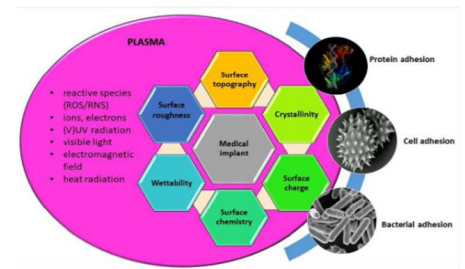


Figure 2: Interaction of the plasma with the surface and its influence on the surface properties

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**Project Coordination:**

Prof. Dr. Monika Saumer  
Hochschule Kaiserslautern  
University of Applied Sciences  
Amerikastraße 1  
66482 Zweibrücken  
Germany

phone: +49 631/3724-5420

e-mail: [Monika.Saumer@hs-kl.de](mailto:Monika.Saumer@hs-kl.de)

**Project Participants:**

Prof. Dr. Bernd Bufe (HS KL)

Prof. Dr. Klaus Peter Koch (HS Trier)

**Partners:**

Osyka AG  
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