

**Project D:** *Graphene based antimicrobial biomaterials*

**Participating researchers (PRs):** A. Turchanin (FSU), L. Tuchscher (UKJ)

**Project description:**

Graphene-based biomaterials offer an innovative alternative for orthopedic implants. These materials have antimicrobial properties and, at the same time, promote bone cell growth. These implants are important to prevent the development of difficult-to-treat bacterial infections.

In our multidisciplinary team we aim to develop novel biomaterials based on graphene that impair the growth of microorganisms and enhance the growth of bone cells. In this project, materials based on modified graphene will be designed and characterized by innovative physical methods such as atomic force microscopy, X-ray photoelectron spectroscopy and surface plasmon resonance measurements. Furthermore, the materials will be tested under in vitro conditions to characterize their antimicrobial as well as their host cell promoting properties. These studies include microbial adhesion and killing.

A materials scientist (chemistry of materials) and a life scientist (microbiology) will work as a tandem team with the PRs on this project.

**Doctoral researcher candidates apply for: “D: Graphene based antimicrobial biomaterials (Turchanin), Materials Science” or “D: Graphene based antimicrobial biomaterials (Tuchscher), Microbiology,” respectively.**