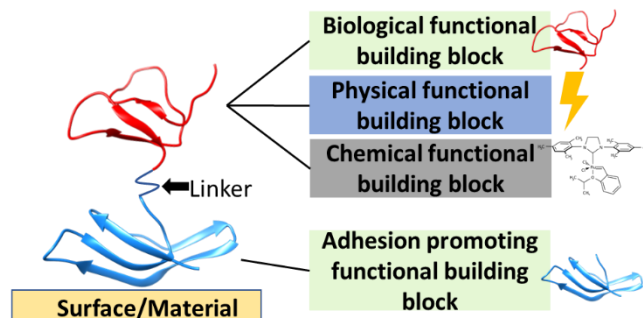


Aachen, 13.12.2022

Master Thesis / Internship

Enzymatic polymerization for thin film coatings

Project: Thin films are needed in all areas of engineering and applied science to enhance the physical and chemical properties of materials. Among other things, they protect steel from corrosion, are water-repellant, and increase the wettability of a surface. However, traditional coating techniques are often toxic, generate waste, and consume a lot of energy. Sustainable coating alternatives are therefore required. A milder and environmentally friendlier approach is based on bifunctional building blocks, consisting of an adhesion-promoting functional building block denoted as anchor peptide (AP) and a covalently bound biological-functional building block. These APs interact with many surfaces and can be used for enzyme immobilization at room temperature and a subsequent polymerization reaction. In this project, anchor peptides will be evaluated for the immobilization of different enzymes on surfaces and their application for thin film coatings.



Methods: Molecular biology (transformation), protein production in *E. coli* and *S. cerevisiae* (shake flask), protein purification, surface characterization techniques (QCM-D, XPS, AFM)

Your profile:

- Master student (f/m/d) in the field of biotechnology, biochemistry, biology or related
- Experience with molecular biology techniques is required
- Experience with enzymes, polymerization and surface characterization techniques is advantageous
- Fluent in German and/or English
- Highly motivated and independent person with the drive to learn and develop

The position is available from February 2023. For the master thesis, a period of 6 months is planned (with the option of a shorter precedent internship). For research internships, a minimum duration of 6 months is planned.

Feel free to contact me via e-mail together with your CV and current Transcript of Records.

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