

Doktorandenstelle/PhD position

H₂.AT - Extremophile mikrobielle Zellfabriken zur hocheffizienten Produktion von Biowasserstoff

Background

Molecular hydrogen (H₂) is an important energy carrier and renewable fuel of the future. It can be produced biologically from anaerobic fermentation, but currently these processes have low production rates and yields. It is necessary to develop new biological H₂ production technologies to obtain H₂ at industrial scale in an energy efficient and environmentally friendly manner.

Goals

In the project H₂.AT, the most suitable extremophiles will be selected and combined into an effective microbial consortium and immobilized in a biofilm (microbial consortia engineering). To maximize the rate of H₂ production, the structured biofilm will be coupled with innovative H₂ removal processes by using “assisted hydrogen production” techniques. The combination of innovative processes for H₂ removal - applying a structured biofilm - will allow a tailored and efficient H₂ production process. The goal of the project H₂.AT is a complete biological conversion of the starting organic matter to H₂.

Prerequisites

The ideal candidate possesses knowledge of physiology and microbiology of extremophilic bacteria and archaea. An asset would be if the candidate possesses hands-on anaerobic cultivation and fermentation experience, knowledge of data exploitation and biofilm assembly techniques as well as knowledge of nanotechnology.

We offer

state of the art anaerobic cultivation and fermentation facilities. Furthermore, we offer assistance in quantitative data exploitation. The candidate will be integrated in an interdisciplinary team with in depth scientific and engineering experience in anaerobic microbiology, physiology, biotechnology and nanotechnology.

Possible start and duration of the thesis

The PhD position can be filled starting on the 1st of April 2016.

Please contact

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