In 2010, the Philipps-Universität Marburg and the Max Planck Institute for Terrestrial Microbiology joined forces to bring synthetic microbiology to Marburg. They established SYNMIKRO, the Center for Synthetic Microbiology, within the LOEWE excellence program of the state of Hessen. Research at the center follows the two-pronged approach - building to understand and understanding to build - to gain insights into the basic principles of microbial life and to provide the fundamental knowledge and tools needed to tap in novel ways the potential of microorganisms as cell factories or sensor/reporter systems. Since its foundation, the center has grown to become a major, internationally visible research institution that today represents one of the hot spots of research in quantitative and synthetic microbiology in Europe.

The Project Group of Dr. Sobetzko, which is part of the Department of Chromosome Biology (Prof. Dr. Torsten Waldminghaus), offers a

**PhD Position:**

**Gene regulation on natural and synthetic chromosomes**

The position is embedded into the DFG-funded project „DNA from the coding perspective“. Salary and benefits are according to a public service position in Germany (TV-H E 13, 65 %). The position starts as soon as possible and is limited to three years, with the option of follow-up financing. The position is limited to a time period deemed adequate for the completion of a doctoral degree. As part of the assigned duties, there will be ample opportunity to conduct the independent scientific research necessary for the completion of a doctorate. The limitation complies to § 2, 1 WissZeitVG.

With the synthesis of artificial chromosomes new challenges arise. A central challenge is the impact on transcription for genes in a newly assembled chromosome. The altered genetic context modulates gene expression and therefore rewires the regulatory system. In order to determine rules for chromosome assembly, we will apply a newly developed CRISPR/Cas system to globally rearrange native chromosomes and detect regulatory perturbations via DNA- and RNA-seq analysis. Furthermore, we will monitor the evolution of the perturbed regulatory system for about 20,000 generations. The successful candidate will apply state-of-the-art techniques including CRISPR/Cas, optogenetics, modular cloning and RNA-seq in a modern environment. At our graduate school the candidate will be trained to professionally present results and hypotheses within SYNMIKRO and on international conferences and workshops.

The successful candidate must hold a MSc, Diploma or a related qualification in Biology. The candidate should demonstrate a very good record and should have proper skills in Genetics and Microbiology. Practical experience in the laboratory is mandatory. Knowledge in the disciplines of Transcriptomics and Genetics are welcome but can be acquired in the course of the project.

For informal project enquiries don’t hesitate to contact Dr. Sobetzko [patrick.sobetzko@synmikro.uni-marburg.de](mailto:patrick.sobetzko@synmikro.uni-marburg.de).

We actively support the professional development of junior researchers, e.g. by the offers of Marburg School of Microbiology ([www.gradschool.synmikro.com](http://www.gradschool.synmikro.com)), Marburg Research Academy (MARA), the International Office, the Higher Education Didactics Office and the Human Resources Development Office.

We support women and strongly encourage them to apply. In areas where women are underrepresented, female applicants will be preferred in case of equal qualifications. Applicants with children are welcome - Philipps-University is certified as a family-friendly university. A reduction of working time is possible. Applicants with a disability as described in SGB IX (§ 2 Abs. 2, 3) will be preferred in case of equal qualifications. Application and interview costs cannot be refunded.

Please send your application mentioning registration number ZE-134-synmikro-wmz-2017 and including a letter of motivation, CV, copies of relevant certificates and name and affiliation of one academic referee electronically as a single pdf to [jobs@synmikro.uni-marburg.de](mailto:jobs@synmikro.uni-marburg.de). Deadline: December 29th, 2017.