CSC-Tübingen PhD Scholarship Program

2023 application round: prospective PhD positions at the University of Tübingen

**Faculty:** Science

**Institute / Section / Subject:** Pharmacy and Biochemistry

**Supervising Professor(s):** Prof. Dr. Dominique Lunter in cooperation with Prof. Dr. Sabine Ludwigs, University of Stuttgart

**About the Supervisor(s):**
Research interests of Prof. Lunter: Formulation development of topical products for the cure of skin diseases [https://uni-tuebingen.de/de/104741](https://uni-tuebingen.de/de/104741)
Research interests of Prof. Ludwigs: Synthesis of stimuli responsive polymers [https://www.ipoc.uni-stuttgart.de/fp/team/Ludwigs-00001](https://www.ipoc.uni-stuttgart.de/fp/team/Ludwigs-00001/)

**Specification:** Application of smart hydrogels for drug delivery to the skin

**Topic Description:** Topical therapy of skin diseases is deemed advantageous as it is associated with less side effects than oral treatment. On the other hand, delivery of active pharmaceutical ingredients (APIs) to and through the skin still remains a challenge. Smart hydrogels are made via controlled polymerisation techniques to allow for tailormade chemical composition. We are particularly interested in stimuli responsive (e.g. temperature and electric field) patches which are compatible with the skin. Manufacture of the patches may be performed via 3D printing or electro spinning. In this project we aim to develop tailored polymers for on demand drug delivery to the skin. The first part of the studies will thus include synthesis and mechanical characterisation of the formed hydrogels. Then, the hydrogels will be loaded with APIs and their biopharmaceutical performance will be evaluated on skin.

**Degree:** Dr. rer. nat.

**Required Degrees:** MSc in Pharmaceutics (preferably from China Pharmaceutical University, Nanjing) or Polymer Chemistry

**Language Requirements:** English min. C1

**Notes:** The student will be requested and offered to work at both institutions: University of Tübingen (Pharmaceutical Technology) and University of Stuttgart (Polymer Chemistry). The PhD will be obtained from University of Tübingen in the field of Pharmaceutical Sciences.