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## PhD Thesis “Hydrogel biofunctionalization for microneedle-based enzymatic biosensors”

Driven by the decentralization of health care systems and the increasing health awareness among the general population, there is a growing demand for low-cost, non-invasive and easy-to-use healthcare devices suitable for determining the health status at the point-of-care. Specifically, self-monitoring of blood glucose is necessary for diabetes patients to evaluate their blood sugar level. However, the common method, to draw blood from the fingertips several times a day with device, is a burden to the patients. Highly promising is the approach represented by minimum invasive systems for glucose monitoring, which are based on the electrochemical detection in the interstitial dermal fluid by biofunctionalised microneedles. In particular, the topic of this PhD Thesis will be the investigation of the hydrogel-based biofunctionalization by inkjet printing of the 3D-printed microneedles.

### Description

- Elaboration of suitable hydrogel-based biofunctionalization schemes for the electrochemical detection of biomolecules using microneedle-based biosensors
- Formulation and printing of hydrogel-based bioinks for inkjet printing
- Performance and evaluation of electrochemical measurements
- Interaction with external industrial project partners
- Publication of project results in journals and at conferences

### Candidate profile

- Master degree in chemistry, technical chemistry or material science
- Interest in surface biofunctionalization, hydrogel technology and electrochemistry
- Practical skills in chemical laboratory work
- Disciplined, self-motivated work style and ability to work independently
- Teamplayer with outstanding communication skills

### Your compensation:

At least € 2.071,00 gross for 30 hours per month standard personnel salaries for FWF project proposals.

Please submit your application documents, including certificates, to

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