

München, 17. November 2019

BA or MA Thesis or Project Work

„A Real-Time Optical Sensor for Pressure Monitoring in Brain Injury“

Background. Light in medicine has applications in photo-dynamic therapy, light-triggered drug delivery, and photo-thermal ablation. It is highly desirable to develop an optical fiber platform with physiochemical properties for implantation in deep tissues while allowing functionalization with photonic materials in sensing applications.

Project scope. The aim of this project is to demonstrate a real-time optical fiber sensor that will enable sensing pressure in human brain. A method will be created to functionalize the tip of optical fibers with pressure-sensitive hydrogels. The hydrogel optical fiber will allow for real-time sensing of pressure in patients with traumatic brain injury.



References

Functionalized Flexible Soft Polymer Optical Fibers for Laser Photomedicine. *Advanced Optical Materials*. 6 (3), 1701118 (2018)

Glucose-Sensitive Hydrogel Optical Fibers Functionalized with Phenylboronic Acid. *Advanced Materials*. 2017, 29, 1606380 (2017)

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