

Gisela and Erwin Sick  
Chair of Micro-Optics

Prof. Hans Zappe

### Project

i-Grape: Optical sensors for precision oenology

### Relevant Tasks

- Sensor optimization and characterization
- Test setup development
- Cleanroom fabrication

### What do we offer?

- Remunerated position
- State-of-the-art equipment
- Possibility to test new ideas
- Highly motivated working environment

### Desired Skills

- Curiosity and creativity
- Hands-on experience
- Signal processing
- Basic optics knowledge

### Eligible departments

MST/MSE, ESE, other related areas

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## Master's thesis

### Optical sensor precision oenology

**Do you want to test your skills working in a project with a high impact on food production? Be involved in an interdisciplinary team of six international project partners, including one of Portugal's largest wine producers? Bring your ideas to life using state-of-the-art equipment in a highly motivated working environment?**

The EU-funded project i-Grape aims to develop a new generation of contactless and autonomous optical sensors for continuous monitoring of grapes in the vineyard. The role of the Gisela and Erwin Sick Chair of Micro-optics is the optical system integration. This includes the integration of optoelectronic sources, detectors and spectral filters on a flexible, hermetically sealed multi-sensor strip which will be incorporated into the grape bunch.



Grape maturation monitoring sensor



Leaf hydric stress sensor

The main tasks for this project will be:

- Stepwise development and characterization of a sensor for fluorescence measurements on grapes
- Characterization of a leaf hydric stress sensor
- Cleanroom fabrication of flexible, multi-sensor strips

If you are interested in knowing more, you are studying MST/MSE, ESE or another related area, and you have some of the skills listed to the left, please send an email to [sophie.jenne@imtek.uni-freiburg.de](mailto:sophie.jenne@imtek.uni-freiburg.de) including:

- Motivational letter
- Curriculum vitae
- Transcript of records of your BSc. and MSc.