



Norwegian University of Science and Technology



PhotoSynLab

## Offer for Internship/Master thesis

Position: Internship/Master thesis

Subject: Genetic engineering, molecular biology, synthetic biology

Start date: February/March 2019

Application deadline: 20<sup>th</sup> of January 2019 (the sooner the better)

Duration: 5 to 9 months

Location: Norwegian University of Science and Technology (Trondheim, Norway)

Laboratory: PhotoSynLab ([www.photosynlab.org](http://www.photosynlab.org))

### **Project description:**

The project aims to utilize a new innovative promoter engineering technique created by the PhotoSynLab. This new technique enables the generation of adapted promoters to modulate gene expression. In this project, the technique will be applied for metabolic engineering purposes, more precisely to regulate the terpenoid biosynthesis pathway in *E. coli*.

The selected candidate will use the promoter engineering technique coupled with fluorescent proteins to establish a system controlling gene expression levels in *E. coli*. The system will be tested on a terpenoid pathway to measure its capacity as a metabolic engineering tool.

### **Profile of the applicant:**

- Master student in biotechnology, molecular biology, synthetic biology or related fields;
- Good knowledge and experience with DNA cloning techniques and gene assembly;
- Knowledge of spectroscopy analysis and molecular separation techniques (HPLC, protein purification);
- Strong organizational skills;
- Good writing skills;
- Fluent in English.

### **Learning opportunities:**

- Insights into gene regulation and genetic organization in bacteria;
- Genetic engineering techniques (design, cloning, transformation, sequencing);
- Metabolic engineering, molecular pathway engineering;
- Analysis techniques: spectroscopy, fluorimetry, HPLC, protein purification, RNAseq;
- Scientific report/manuscript writing;

**The Laboratory:**

PhotoSynLab is part of the microbial biotechnology division, under the faculty of Natural Sciences Faculty of the Norwegian University of Science and Technology, a prestigious Scandinavian university situated in Trondheim in the heart of Norway. The group is composed of 14 young researchers led by Adjunct Associate Professor Lale and Associate Professor Hohmann-Marriott and enjoys a multicultural, dynamic and cheerful environment.

The lab has various research activities within the fields of biophysics, nanotechnology, photosynthesis and synthetic biology. We are working with a wide range of microorganisms spanning across the bacterial and eukaryotic domains of life, with a special focus on photosynthetic organisms.

A research in PhotoSynLab can provide a fruitful environment to learn many techniques and discover diverse aspects of molecular biology research. This internship is a perfect launch for a young scientific career and will give you the opportunity to establish useful connections within the field.

**Contact:**

Apply by sending your resume and a cover letter to the following email address:

[maxime.fages-lartaud@ntnu.no](mailto:maxime.fages-lartaud@ntnu.no)