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## Identification of Polyhydroxyalkanoates (PHAs) Accumulation Microorganisms and Visualization of Intracellular PHA Granular

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**Field:** Biotechnology, Microbiology and Molecular Microbiology

**Duration:** at least 6 months

**Starting Date:** September 2019 with flexibility

**Location:** Wetsus, European Centre of Excellence for Sustainable Water Technology, Leeuwarden (The Netherlands)

**Allowance:** 350 €/month

### 1. Project description

Aerobic biological processes are widely applied for wastewater treatment. During the process while improving the water quality a (waste) surplus activated sludge are produced. It has been demonstrated in pilot scale that surplus activated sludge could accumulate carbon storage elements Polyhydroxyalkanoates (PHAs) up to 40%/ VSS. Surplus activated sludge is a complex mixed culture biomass. In surplus activated sludge, only limited information about the PHA accumulation microorganisms are known. The objective of this project is to gain deepened insight into the identification of the PHA accumulators and understand the distribution of intracellular PHA granular among different microorganisms. The techniques such as Next Generation Sequencing, Fluorescence *In-situ* Hybridization and PHA granular staining would be investigated and applied. This project is embedded in the theme 'Biopolymers from water' (<https://www.wetsus.nl/biopolymers-from-water>) in collaboration with Delft University and industrial partners.

### 2. Your tasks

- Sequencing the surplus activated sludge to identify the dominant microorganisms
- Design the FISH probes to identify and visualize the viable dominant microorganisms
- Investigate the visualization of the intracellular PHA granular
- Interaction and collaboration within a dynamic multidisciplinary and multinational research team

### 3. Your profile

- Specializing in biotechnology, microbiology, molecular microbiology or related fields
- Preferably an EU citizen or an international MSc student actively enrolled in a Dutch university
- An aptitude and interest for practical laboratory experience and analytical work
- Fluent in English language (spoken, written and communication skills)
- Highly motivated, enthusiastic and independent thinker and doer who also like to work in a team

### 4. How to apply

Interested students are invited to send a motivation letter (max. 1 page) and a CV (max. 2 pages) to Ruizhe Pei ([ruizhe.pei@wetsus.nl](mailto:ruizhe.pei@wetsus.nl)).