

The IWW Water Centre offers an MSc thesis project in the area of 'Applied Microbiology'. The project is located in Mülheim an der Ruhr and could start after December 2016.

## MSc Project in molecular microbiology

### **We are looking for...**

The project aims at the development of a sensitive and rapid diagnostic method to detect live *Legionella* in water and aerosols of cooling towers. *Legionella pneumophila* is the causative agent of pneumonia and one of the most wide-spread waterborne pathogens. Its omnipresence in water installations poses a major problem and requires powerful and rapid diagnostic methods. This applies both to shower systems in private households and to cooling towers in industrial settings. There is an estimated number btw. 30-50,000 cooling towers alone in Germany which have been receiving substantial regulatory attention to ensure safe operation and to eliminate risk for the public from their emissions.

The method that shall be established is based on treating microbiological samples with a vitality dye that selectively allows the quantitative PCR detection of live intact bacteria. Signals from dead membrane-compromised cells are strongly suppressed. This powerful diagnostic approach has been successful with a range of microorganisms, but needs optimization for application to *Legionella pneumophila*. The new method will shorten the time to detection from approx. 10 days (with culture methods) to a couple of hours. The impact will therefore be considerable.

### **We offer...**

The project will be performed in the group of 'Applied Microbiology' at IWW in Mülheim. The group closely works together with the Biofilm Centre of the University of Duisburg Essen. The work will be supervised by Dr. Andreas Nocker who has a long history of working in the field of microbial viability research and microbial diagnostics. The project will give a deep insight into microbiology with an intention to publish. The project can start early 2017.

In case of interest please email a brief resume to Andreas Nocker (a.nocker@iww-online.de). Questions can be answered informally by phone (0208/40303-383) or email. More information about IWW can be found on the institute's website.