Wetsus, the research groups Environmental Technology of Wageningen University and the research group Membrane Science and Technology of the University of Twente have a vacancy for a PhD position.

1Ph.D. position: "Dynamic gel-layer membranes for (waste) water filtration" (location: TTIW Wetsus, Leeuwarden, NL)

Separation of particles is very important in (waste)water treatment. Particle separation by micro- and ultrafiltration (MF and UF) offers the advantage that 100% separation efficiency can be achieved. However, these membranes are expensive (typically 50-100 €/m^2) and suffer from fouling. This proposal aims to develop an alternative by using a cheap supporting material for a dynamic gel-layer, which acts as the actual separation layer for small (colloid sized) particles (alternative for MF/UF membranes), and later on also for removal of specific dissolved substances (alternative for NF/RO membranes). The project involves membrane design and development, characterization and application. Due to (biological) degradation, fouling, compaction or other mechanisms, performance of the gel-layer will deteriorate in time. To address this aspect, also long term stability and removal and replacement mechanisms will be investigated. For more NF or even RO related applications it is possible to embed specific constituents in the gel layers that selectively remove e.g. organic micropollutants or specific ions. Additionally, to evaluate membrane performance under real conditions, larger scale experiments with realistic waste waters will be performed.

The research will be conducted at Wetsus in Leeuwarden, NL (www.wetsus.nl) under the supervision of the research groups Environmental Technology of Wageningen University (http://www.wageningenur.nl/en/Expertise-Services/Chair-groups/Agrotechnology-and-Food-Sciences/Subdepartment-of-Environmental-Technology.htm) and Membrane Science and Technology of the University of Twente (www.utwente.nl/tnw/mst). Wetsus, centre of excellence for sustainable water technology, is a facilitating intermediary for frontier water research. The multidisciplinary collaboration between companies and universities from all over Europe in Wetsus results in innovations that contribute significantly to solutions for the global water problems. The sub-department of Environmental Technology of Wageningen University performs research in the field of Reusable Water, Renewable Energy and Recyclable Matter including soils and sediments. In cooperation with other research groups ETE addresses cleaner production issues and sustainable material chains. The Membrane Science & Technology group of the University of Twente is the only academic polymer membrane group in The Netherlands and internationally leading in the field of membranes for Energy and Water Applications. Research ranges from molecule to process and comprises the complete knowledge chain from membrane design and development, membrane characterization and application.

We are looking for highly motivated and enthusiastic researchers with an MSc degree in chemical engineering, bioengineering or a related topic, with adequate experimental and theoretical skills and an affinity for (micro)biological processes.

We prefer candidates with a good team spirit, who like to work in an internationally oriented environment. Fluency in English is a requirement. An interview and a scientific presentation will be part of the selection procedure.

We offer you a PhD position for 4 years. Your starting salary will be € 2083, - gross per month in the first year and up to € 2664, - gross per month in the last year.

Interested candidates are invited to send, by email, a motivation letter, curriculum vitae (including references) and a list of BSc and MSc courses and grades to Dr. Hardy Temmink (hardy.temmink@wur.nl; phone: +31 317 484 805; Wageningen University) or Dr. Ir. Antoine Kemperman (a.j.b.kemperman@utwente.nl; phone: +31 53 489 2956; University of Twente).