JOB POSTING

POSITION: **INDUSTRIAL POST-DOCTORAL FELLOWSHIP IN WATER MICROFILTRATION & MODELING**

REPORTS TO: **RESEARCH TEAM LEADER**

Purpose of position:

A 16-months post-graduate research project is available with Trojan Technologies in collaboration with the University of Western Ontario, London, ON. Canada. The position is part of the Trojan Research team whose focus is to execute world class scientific investigations to support the development and commercialization of leading edge, environmentally friendly technologies for water treatment.

The objective of this project is to experimentally assess and numerically model the unsteady dynamics occurring during microfiltration of biological organisms in water.

Short description of the project:

UV treatment is a highly promising technology for water treatment because of effective disinfection of viruses and bacteria, and minimal by-product formation. However, UV irradiation alone may not be sufficient for inactivating micron-sized organisms with cost-effective UV doses. In this case, upstream filtration combined with UV disinfection has been demonstrated to be a viable option for a variety of applications, including seawater treatment. To effectively integrate these two processes, a thorough understanding of synergistic mechanisms of biological particle removal and inactivation is needed. Thus, the objectives of this research project are:

- Investigate filtration dynamics at different scales (e.g., micro- and macro-scale)
- Develop and validate a numerical model to describe the filtration process at macro-scale
- Assess synergies between filtration and ultraviolet light under varying operating conditions
- Optimize the integrated process performance using the validated model

***Essential skills, knowledge, and abilities*:**

- Strong knowledge in liquid filtration and filtration theory proven by publication record in peer-reviewed scientific literature
- Advanced knowledge of microfiltration of biological particles from liquid media
- Advanced knowledge of Matlab or equivalent numerical platforms
- Demonstrated knowledge of statistics, optimization theory and design of experiments (DOE) techniques.
- Hands-on experience with filtration studies at laboratory and pilot scales
- Capability of developing standard operating procedures (SOP) for assessing filtration efficiency
- Capability of using particle size analyzers and microscopy-based counting techniques
- Capability of analyzing data and performing literature search and reviews
- Ability to independently conceptualize and conduct experiments both at lab and pilot scale
- Ability to communicate technical information verbally and in writing, share ideas and knowledge across the corporation, cultivate excellent working relationships within the organization and with external collaborators
- Demonstrated interpersonal skills and experience working independently and as part of an interdisciplinary team.
- Commitment to maintaining a safe and organized work environment

Education requirements:

Ph.D. degree in Engineering, Applied Science or Equivalent Area

If interested in this position, please forward your resume to Dr. Domenico Santoro (dsantoro@trojanuv.com) for consideration.