PhD Opportunity for APA/IPRS (or equivalent) applicants

**,Release of Intracellular Cyanotoxins during Oxidation of Natural Bloom Samples and Laboratory Cultured Cells**

UNSW Water Research Centre, School of Civil and Environmental Engineering/
bioMASS Lab, School of Chemical Engineering/
Water Research Foundation (USA)/ Water Research Australia

An operating allowance and PhD top-up scholarship is available for a successful APA/IPRS applicant via a UNSW-WRF-WaterRA research project titled “Release of intracellular cyanotoxins during oxidation of natural bloom samples and laboratory cultured cells”. Successful oxidation of toxic cyanobacteria cells and their associated toxins is a major challenge for water utilities during water treatment and wastewater reuse due to unknown phenomena that govern the process. The available literature regarding intracellular release during oxidation focuses on a limited range of treatment conditions using primarily laboratory cultured cells and few mass balance determinations with total, intracellular, and extracellular cyanotoxin measurements. In order for water utilities to improve their response to cyanobacterial blooms, several knowledge gaps regarding the fate of intracellular cyanotoxins during oxidation of naturally occurring toxic cyanobacteria cells in fresh water, and wastewater lagoons and stabilisation ponds need to be addressed. This research project will build upon the previous research to focus more on conditions practical for water treatment and wastewater reuse, and provide improved mass balance information for total, intracellular, and extracellular cyanotoxin concentration. A framework will be generated to create guideline values for oxidation conditions where (1) the intracellular cyanotoxin will be released, and (2) fluorescence-based probe measurements indicate when cell damage has occurred.

The successful student will join the project team that entails a substantial collaboration between the School of Chemical Engineering, School of Civil and Environmental Engineering, Water Research Foundation (USA) and Water Research Australia (WaterRA). The suitable candidate will have a background in environmental engineering. The candidate should have a demonstrated aptitude for undertaking laboratory work and an understanding of water treatment technologies. The candidate should have excellent communication skills and will be expected to interact regularly with industry partners. The student needs to be successful in securing their own primary scholarship via APA or IPRS schemes (or equivalent) - [https://research.unsw.edu.au/postgraduate-research-scholarships](https://research.unsw.edu.au/postgraduate-research-scholarships).

Further information on the project and scholarship on offer may be obtained from Dr Arash Zamyadi (email: a.zamyadi@unsw.edu.au), Dr Rita Henderson (email: r.henderson@unsw.edu.au) or Prof Richard Stuetz (r.stuetz@unsw.edu.au). Applications for the scholarships (including a cover letter, academic transcript and CV) should be submitted to Dr Zamyadi, UNSW Water Research Centre, University of New South Wales, Sydney NSW 2052.