הטכניון - מכון טכנולוגי לישראל

TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY

הפקולטה להנדסה כימית
ע״ש וולפסון
The Wolfson Department of Chemical Engineering

Wolfson Department of Chemical Engineering Seminar

Monday, February 5th, 2024 at 13:30

Room 1

Development of a controlled wastewater-remediation single reactor, utilizing both photocatalysis and biotreatment

Yuejun Yu

PhD mid Seminar

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Wastewater is known to contain large variety of organic and inorganic pollutants originating from industrial, agricultural, or domestic activities. Unfortunately, a single wastewater treatment method can hardly handle wastewater with complicate composition. Biological treatment and photocatalytic treatment, as two techniques that are frequently used in contaminated water purification, suffer from their own drawbacks in practical wastewater treatment.

Here, we propose a way to combine the two methods in one AOP-biological combined reactor. Rare earth oxide (REOs) will be introduced to the photocatalyst to enhance the preferential degradation of non-polar toxic compounds and a small bioreactor platform (SBP) capsules will be used to maintain a stable working bacteria culture.

The combination of these two methods may provide a way to solve the problems under complicate environments and can significantly reduce the operation cost of the process. This reactor should be able to cover the limits of the two techniques from each side and increase the efficiency of polluted water purification in harsh situation. To optimize the operation of this novel reactor, work was done to study the reaction efficiency under different conditions.

Refreshments will be served at 13:15.