Sustainable Water and Wastewater Treatment Technologies

Pei Xu

8-13-2019
Water and Wastewater Systems
- Water quality
- Wastewater treatment and reuse
- Membrane processes & desalination
- Water and energy
- Resources recovery
From Fundamental Laboratory Study to Field Demonstration
Photocatalytic Membrane Distillation for Closed-loop Water Recovery

Solar irradiation

Wastewater → Warm Feed → N, P, small organics → TiO₂-GO coating → Carbon black

Cold Distillate → Potable water

Potential contaminants & CO₂ + H₂O

Membrane

H₂O/OH⁻ •

O₂

O₂⁻

OH⁺

H₂O

TiO₂

GO

Potable water

Organic contaminants

T. P. small organics

Carbon black
Thank you! See you in the Lab Tour!

pxu@nmsu.edu