

**Name:**

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Department:

Dept. of Civil Engineering

University:

University of Salerno

Supervisor(s):

Luigi Rizzo, Associate Professor

Funding Body:

Marie Skłodowska-Curie grant agreement No. 675530

Field of Study:

water sanitation; water reuse; antibiotic resistance

Thesis Title:

Development of a new photocatalytic reactor for waste water disinfection and subsequent application in crops irrigation: effect on antibiotic resistance transfer and antibiotic resistant bacteria & genes accumulation in crops.

Abstract:

Initial stages include choosing a photocatalyst based on efficiency of disinfection and feasibility of scale up, followed by supporting the catalyst in macroscale heterogeneous form. The photocatalyst in supported form will be used for waste water treatment with special focus on how this affects antibiotic resistance. The final step will focus on the real life application and resulting effects concerning antibiotic resistance transfer to crops and soils

Collaborations:

Adventech, Portugal

Agricultural Research Organization - Volcani Center, Israel

Publications:

Xiao, R., **Zammit, I.**, Wei, Z., Hu, W. P., MacLeod, M., & Spinney, R. (2015). Kinetics and Mechanism of the Oxidation of Cyclic Methylsiloxanes by Hydroxyl Radical in the Gas Phase: An Experimental and Theoretical Study. *Environmental science & technology*, 49(22), 13322-13330.

Presentations:

Oral Presentation ICCE Sept 2015 Leipzig:

Second Order Rate Constants for Cyclic (D3-D5) and Linear (L2-L4) Siloxanes with Gas Phase Hydroxyl Radicals, measured using a Relative Rate Method.