

# Yael Zvulunov

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## EDUCATION

**PhD (direct track) in Environmental Engineering** | Technion – Israel Institute of Technology, 2016 – 2022

Dissertation title: Bioregenerable Mineral Based Materials for the Remediation of Soluble Organic Pollutants

Supervisor: Dr. Adi Radian

GPA: 92.3

**BSc in Biochemical Engineering** | Technion – Israel Institute of Technology, 2011 – 2016

GPA: 83.9

Dean's list, Winter semester 2014 (GPA: 90.5) and Spring semester 2016 (GPA: 90.5)

## RESEARCH EXPERIENCE

**Fields** Adsorption processes, microbiology and biodegradation, clays and oxides, clay modification, polymers and hydrogels, encapsulation and immobilization of bacteria, organic pollutants

**Methods** Experience in BET, FTIR, UV-Vis, HPLC, XRD, SEM (preparation and imaging of microbiological, organic and mineral samples), Zeta potential & DLS. Some experience with light microscopy and EDS.

## FELLOWSHIPS, AWARDS AND HONORS

**Vaadia-BARD Postdoctoral Fellowship** | 2022 – present

**Noah Galil Award for outstanding research on water treatment** | 2022

**Israel Water Authority Doctoral Scholarship** | 2020 – 2022

**Blair Jones/Jane Flynn Award** for highest rated Travel Grant application | Annual Conference of the Clay Minerals Society (EuroClay), 2019

**Best Poster Award** | Graduate Research Day of the Technion Faculty of Civil and Environmental Engineering, 2017

Member of the **winning team for the Water track** | UNLEASH International Innovation Lab, 2017

**Moshe Shnabel Scholarship** for Creativity and Excellence in Civil and Environmental Engineering | as part of the Evrona Oil Spill undergraduate projects (project title: Methods for the Detection of Oil Biodegradation in Soil), Technion, 2016

## PUBLICATIONS

### Peer-reviewed papers

1. Gal R., Perez-Lapid N., Zvulunov Y., Radian A. *Layer-by-Layer Encapsulation of Herbicide-Degrading Bacteria for Improved Surface Properties and Compatibility in Soils*. *Polymers*. 13 (21), 3814. 2021
2. Zvulunov Y., Radian. A. *Alginate Composites Reinforced with Polyelectrolytes and Clay for Improved Adsorption and Bioremediation of Formaldehyde from Water*. *ACS ES&T Water*. 1 (8), 1837-1848. 2021
3. Shemesh A., Zvulunov Y., Radian A. *Impact of Cocultivation on the Aggregation and Sedimentation Trends of Cyanobacteria with Native and Modified Clay Minerals*. *Separation and Purification Technology*. 278, 119179. 2021
4. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., Radian A. *A Self-Regenerating Clay-Polymer-Bacteria Composite for Formaldehyde Removal from Water*. *Chemical Engineering Journal*. 374, 1275-1285. 2019

### Patents

5. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., Radian A. *Bio-clay composites for aldehyde remediation*. U.S. Patent Application No. 17058265. Published April 2021

## CONFERENCES

### International

1. Zvulunov Y., Radian A. *Encapsulation of biogenic Mn oxides for improved oxidation of glyphosate*. IAP 2022 – Interfaces Against Pollution, Antwerp, Belgium (Oral presentation)
2. Zvulunov Y., Radian A. *Higher, Further, Faster: Glyphosate Oxidation by Biogenic Mn Oxides*. Sustainable Agricultural Water Workshop 2022, Estes Park, Colorado, USA (Poster presentation)
3. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., and Radian A. *Polymer-Clay Biocomposites for Formaldehyde Adsorption and Biodegradation*. AGU Fall Meeting 2021, New Orleans (Poster presentation)
4. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., and Radian A. *Self-Regenerating Clay Biocomposites for Formaldehyde Remediation*. EuroClay 2019, Paris (Oral presentation)
5. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., and Radian A. *Self-Regenerating Clay Biocomposites for Formaldehyde Remediation*. IAP 2018 – Interfaces Against Pollution, La Grande Motte, France (Poster presentation)
6. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., and Radian A. *Clay-Polymer Composites for Chemical and Biological Remediation of Formaldehyde*. 16<sup>th</sup> International Clay Conference, Granada, 2017 (Oral presentation)

## Local

7. Zvulunov Y., Radian A. *Bioregenerable Mineral Based Materials for the Remediation of Soluble Organic Pollutants*. Israel Water Authority Graduate Student conference, **2021** (Oral presentation)
8. Zvulunov Y., Radian A. *Effect of Polycation and Clay Reinforcement of Alginate Beads for Formaldehyde Removal from Water*. Israel Soil Science conference, **2020** (Oral presentation)
9. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., Radian A. *Self-Regenerating Bio-Clays for Formaldehyde Remediation*. Israel Society for Biotechnology Engineering conference, Tel Aviv, **2019** (Poster presentation)
10. Zvulunov Y., Ben-Barak Zelas Z., Fishman A., Radian A. *Self-Regenerating Clay Biocomposites for Formaldehyde Remediation*. Israel Soil Science conference, Rehovot, **2018** (Oral presentation)
11. Zvulunov Y., Fishman A., Radian A. *Fixing Waste with Fixed Bacteria: On Self Regenerating Clay Composites*. Annual symposium of the Faculty of Civil and Environmental Engineering, Technion, **2018** (Poster presentation)
12. Zvulunov Y., Fishman A., Radian A. *Waste Eating, Self-Cleaning Clays*. Jacobs Graduate Research Day, Technion, **2018** (Poster presentation)
13. Zvulunov Y., Fishman A., Radian A. *Waste Eating, Self-Cleaning Clays*. Graduate Research Day, Faculty of Civil and Environmental Engineering, Technion, **2017** (Poster presentation)

## WORK EXPERIENCE

**Chair**, Water Research in Israel – the GWRI Graduate Student Conference, Technion, Israel | 2018, 2020

**Military Service** | manual Q.A. tester and acquisitions manager, Israeli Intelligence Force, 2008 – 2010

## SPECIAL ACTIVITIES

Staff and management member at **conventions of the Israeli Society for Science Fiction and Fantasy** | various roles including content production, management, administration and audit committee, 2009 – present

**Academic coordinator** for the Faculty of Chemical Engineering, Technion Student Association | 2015 – 2016

Member of the **Chemical Engineering Students' Council**, Technion Student Association | 2014 – 2015