

# Javad Vahabzadeh Pasikhani

## PERSONAL INFORMATION

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Personal Web Page:

 [Researchgate](#)

 [LinkedIn](#)

 [Google Scholar](#)

## EDUCATION

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May 2021 – Present

### Doctor of Philosophy in Chemical Engineering

- Université de Montréal- Polytechnique Montréal, Montreal, Canada
- Supervisor: **Prof. Jamal Chaouki**

Sept. 2014 - Jan. 2017

### Master of Science in Chemical Engineering

- University of Tehran, Tehran, Iran
- Thesis: *Fabrication of TiO<sub>2</sub> nanotubes for the photocatalytic degradation of 2,4-dichlorophenol*
- Supervisor: **Dr. Neda Gilani; Dr. Azadeh Ebrahimian Pirbazari**
- Overall GPA: 18.15 out of 20 (3.8 out of 4)

Sept. 2010 - Sept. 2014

### Bachelor of Science in Chemical Engineering

- University of Tehran, Tehran, Iran
- Thesis: *Highly ordered titanium dioxide nanotube arrays and their applications*
- Supervisor: **Dr. Neda Gilani**
- Overall GPA: 16.59 out of 20 (3.5 out of 4)

## RESEARCH INTERESTS

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- **Fabrication and Characterization of Nanostructured Materials**
- **Fabrication and Characterization of Porous and Mesoporous Materials**
- **Photoelectrochemical Processes**
- **Photocatalytic Processes**
- **Advanced Oxidation Processes**
- **Nanostructured Materials for Solar Cells**
- **Nanostructured Materials for Fuel Cells**
- **Nanostructured Materials for Lithium-Ion Batteries**
- **Wastewater Treatment**
- **Catalytic and Photocatalytic Hydrogen Generation**
- **Water Splitting**
- **Adsorption Processes**

## HONOURS & AWARDS

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*Jan. 2019*

### **The Best Graduate Thesis Award**

- Received the best graduate thesis award (ranked 1<sup>st</sup>) in Chemical Engineering, Selected by the Iranian Association of Chemical Engineering (IChE)

*Jan. 2019*

### **The Best B.Sc. Thesis Advisor Award**

- Winning the best undergraduate thesis award (ranked 3<sup>rd</sup>) in Chemical Engineering, Selected by the Iranian Association of Chemical Engineering (IChE)
- Thesis: *Enhancement of Hydrogen Evolution Over TiO<sub>2</sub> Nanotubes by Supporting Quantum Cu(II) Nanodots on Their Mesoporous Surfaces*, By **Parisa Tafazoli Motie**
- Supervisor: **Dr. Neda Gilani**;
- Advisor: **Javad Vahabzadeh Pasikhani**

*Mar. 2018*

### **Faculty of Engineering (FOE) Award**

- Received the FOE award for the top graduating students in the field of Chemical Engineering, University of Tehran, Iran

*May 2017*

### **Iran's National Elites Foundation (INEF)**

- Received the graduate award of Iran's National Elites Foundation (INEF)

*Jan. 2017*

### **A Top-Ranking Student**

- Ranked 3<sup>rd</sup> among the all graduating students in Chemical Engineering, University of Tehran, Iran

*Nov. 2015*

### **Iran Nanotechnology Innovation Council (INIC) Award**

- Received the Nanotechnology Education Foundation (NEF) for graduate thesis

*Sept. 2014*

### **Faculty of Engineering (FOE) Award**

- Received the exceptional talent award from the University of Tehran

*Sept. 2014*

### **A Top-Ranking Student**

- Ranked within the top 5% among the all B.Sc. students in Chemical Engineering, University of Tehran, Iran

## TEACHING EXPERIENCE

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*Sept. 2018 – July 2019* **University Lecturer**, Caspian Faculty of Engineering, University of Tehran, Iran

- Course Title: “**Heat Transfer Laboratory**” for B.Sc. Students, Department of Chemical Engineering and Department of Polymer Engineering
- Taught the experiments on various types of equipment related to heat transfer, With approximately 50 hours of lectures per course

*Sept. 2018 – July 2019* **University Lecturer**, Fouman Faculty of Engineering, University of Tehran, Iran

- Course Title: “**Heat Transfer Laboratory**” for B.Sc. Students, Department of Chemical Engineering and Department of Petroleum Engineering
- Taught the experiments on various types of equipment related to heat transfer, With approximately 50 hours of lectures per course

*Jan. 2017 – Sept. 2019* **Thesis Advisor**, Fouman Faculty of Engineering, University of Tehran, Iran

- Collaborated as an advisor with **Dr. Neda Gilani** in the graduate theses (4 Theses) and undergraduate theses (2 Theses)
- Defined novel research, Fabricated various devices, Consulted Students

*Sept. 2016- Jan. 2017* **Teaching Assistant**, Fouman Faculty of Engineering, University of Tehran, Iran

- Course Title: “**Advanced Mass Transfer**” for M.Sc. students
- Solved various problems from different mass transfer books such as Byron Bird, E.L. Cussler, James R. Welty and Koichi Asano
- Explained difficult concepts and sophisticate subjects
- Supervisor: **Dr. Mohammad Ali Aroon**

*Jan 2016 – June 2016* **Teaching Assistant**, Caspian Faculty of Engineering, University of Tehran, Iran

- Course Title: “**Advanced Mass Transfer**” for M.Sc. students
- Solved various problems from different mass transfer books such as Byron Bird, E.L. Cussler, James R. Welty and Koichi Asano
- Explained difficult concepts and sophisticate subjects
- Supervisor: **Dr. Mohammad Ali Aroon**

## RESEARCH EXPERIENCE

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- Sept. 2017 – Sept. 2019** **Research Associate**, Advisor of M.Sc. Thesis, Department of Chemical Engineering, University of Tehran, Iran
- Project: *Fabrication and Investigation of Electrochemical Properties of Cu-B/TiO<sub>2</sub> Ternary Photoanode for Photoelectrocatalytic Degradation of Methylene Blue*
  - Project: *Fabrication and Characterization of Ni-doped Highly Ordered TiO<sub>2</sub> Nanotube Arrays Under UV Irradiation to utilize for Photocatalytic Degradation of 2,4-dichlorophenol*
  - Project: *Improvement of Photocatalytic degradation of Methylene Blue by TiO<sub>2</sub> Nanotubes Modified with Fe<sub>3</sub>O<sub>4</sub>/RGO Composite*
  - Project: *Photoelectrochemical Hydrogen Evolution in the Middle Membrane Cells by Using WO<sub>3</sub>-TiO<sub>2</sub> Nanorods Hybrid Photoanodes*
  - Designed and fabricated photoelectrocatalytic setup
  - Designed and fabricated middle membrane cell and water splitting setup
  - Supervisor: **Dr. Neda Gilani**
- Feb. 2017 – Nov. 2018** **Research Associate**, Iran National Science Foundation (INSF)
- Project: *Fabrication and Characterization of Highly Ordered and Aligned Titanium Dioxide Nanotubes Arrays for the Photocatalytic Degradation of Organic pollutants in the Industrial Wastewaters*
  - Supervisor: **Dr. Neda Gilani**
- Jan. 2017 – Sept. 2017** **Research Associate**, Advisor of B.Sc. Thesis, Department of Chemical Engineering, University of Tehran, Iran
- Project: *Enhancement of Hydrogen Evolution Over TiO<sub>2</sub> Nanotubes by Supporting Quantum Cu(II) Nanodots on Their Mesoporous Surfaces*
  - Designed and fabricated photodeposition system and catalytic hydrogen generation setup
  - Supervisor: **Dr. Neda Gilani**
- Sept. 2015 – Jan. 2017** **Research Assistant**, M.Sc. Thesis, Department of Chemical Engineering, University of Tehran, Iran
- Investigated the anodization parameters to fabricate highly ordered TiO<sub>2</sub> nanotubes arrays
  - Examined the effect of geometrical properties of anodic TiO<sub>2</sub> nanotubes on the photocatalytic degradation of 2,4-dichlorophenol
  - Designed and constructed the anodization system and photocatalytic reactor
  - Supervisor: **Dr. Neda Gilani**
- Jan. 2014 – Sept. 2014** **Research Assistant**, B.Sc. Thesis, Department of Chemical Engineering, University of Tehran, Iran
- Investigated theoretically the various synthesis methods of TiO<sub>2</sub> nanotubes and their applications
  - Supervisor: **Dr. Neda Gilani**

## PROFESSIONAL MEMBERSHIP

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- Jan. 2019* ➤ **Full member**, Iranian Association of Chemical Engineering (IACChE)
- June 2017* ➤ **Full member**, Iran's National Elites Foundation (INEF)
- Mar. 2014* ➤ **Full member**, Iran Nanotechnology Innovation Council (INIC)

## PUBLICATIONS & CONFERENCES

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### Peer-reviewed Articles

- **Javad Vahabzadeh Pasikhani**, Bahareh Ghorbani Aliabadi, Neda Gilani, Azadeh Ebrahimian Pirbazari, “Construction of NiO and Ti<sup>3+</sup> self-doped TNTs thin film as a high quantum yield p-n type heterojunction via a novel photoelectrodeposition-assisted anodization method”, *Journal of Photochemistry and Photobiology A: Chemistry*. 418 (2021) 113433.  
[DOI:10.1016/j.jphotochem.2021.113433](https://doi.org/10.1016/j.jphotochem.2021.113433)
- Armin Hariri, Neda Gilani, **Javad Vahabzadeh Pasikhani**, “Promoting the Photo-induced Charge Separation and Photoelectrocatalytic Hydrogen Generation: Z-scheme Configuration of WO<sub>3</sub> Quantum Nanodots-Decorated Immobilized Ti/TiO<sub>2</sub> Nanorods”, *Journal of Alloys and Compounds*. 871 (2021) 159528. [DOI: https://doi.org/10.1016/j.jallcom.2021.159528](https://doi.org/10.1016/j.jallcom.2021.159528)
- Rezgar Habibi, Neda Gilani, **Javad Vahabzadeh Pasikhani**, Azadeh Ebrahimian Pirbazari, “Improved photoelectrocatalytic activity of anodic TiO<sub>2</sub> nanotubes by boron in situ doping coupled with geometrical optimization: Application of a potent photoanode in the purification of dye wastewater”, *Journal of Solid State Electrochemistry*. 25 (2021) 545–560.  
[DOI: 10.1007/s10008-020-04825-6](https://doi.org/10.1007/s10008-020-04825-6)
- Bahareh Ghorbani Aliabadi, Neda Gilani, **Javad Vahabzadeh Pasikhani**, Azadeh Ebrahimian Pirbazari, “Boosting the photoconversion efficiency of TiO<sub>2</sub> nanotubes using UV radiation-assisted anodization as a prospective method: An efficient photocatalyst for eliminating resistant organic pollutants”, *Ceramic International*. 46 (2020) 19942-19951.  
<https://doi.org/10.1016/j.ceramint.2020.05.061>
- Seyed Ghorban Hosseini, **Javad Vahabzadeh Pasikhani**, “Enhanced optical properties and photocatalytic activity of TiO<sub>2</sub> nanotubes by using magnetic activated carbon: evaluating photocatalytic reduction of Cr(VI)”, *Environmental Technology*. (2019) 1-18.  
[doi:10.1080/09593330.2019.1649466](https://doi.org/10.1080/09593330.2019.1649466).
- Neda Gilani, **Javad Vahabzadeh Pasikhani**, Mahmood Akbari, Parisa Tafazoli Motie, “Hydrogen evolution from catalytic hydrolysis of NaBH<sub>4</sub>: Comparative study between the catalytic activity of TiO<sub>2</sub> nanotubes with various arrangements”, *Journal of Nanostructures*, 9(2019), 587-599. [doi: 10.22052/JNS.2019.03.020](https://doi.org/10.22052/JNS.2019.03.020)
- Seyed Ghorban Hosseini, **Javad Vahabzadeh Pasikhani**, “Kinetic and thermodynamic investigation on the adsorption of hexavalent chromium pollution by Fe<sub>3</sub>O<sub>4</sub>/AC/TiO<sub>2</sub> nanotubes as a novel ternary magnetic nanocomposite”, *Desalination and Water Treatment*. 152 (2019) 351–365. [doi:10.5004/dwt.2019.24008](https://doi.org/10.5004/dwt.2019.24008).
- Neda Gilani, **Javad Vahabzadeh Pasikhani**, Parisa Tafazoli Motie, Mahmood Akbari, “Fabrication of quantum Cu(II) nanodot decorated TiO<sub>2</sub> nanotubes by the photochemical deposition-assisted hydrothermal method: study catalytic activity in hydrogen generation”, *Desalination and Water Treatment*. 139 (2019) 145–155. [doi:10.5004/dwt.2019.23133](https://doi.org/10.5004/dwt.2019.23133).
- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Azadeh Ebrahimian Pirbazari, “Improvement the wastewater purification by TiO<sub>2</sub> nanotube arrays: The effect of etching-step on the photo-

generated charge carriers and photocatalytic activity of anodic TiO<sub>2</sub> nanotubes”, Solid State Sciences. 84 (2018) 57-74. [doi:10.1016/j.solidstatedciences.2018.08.003](https://doi.org/10.1016/j.solidstatedciences.2018.08.003).

- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Azadeh Ebrahimian Pirbazari, “The correlation between structural properties, geometrical features, and photoactivity of freestanding TiO<sub>2</sub> nanotubes in comparative degradation of 2,4-dichlorophenol and methylene blue”, Materials Research Express. 5 (2018) 025016. [doi:10.1088/2053-1591/aaaa34](https://doi.org/10.1088/2053-1591/aaaa34).
- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Azadeh Ebrahimian Pirbazari, “Investigation the Photocatalytic Performance of Aligned Titanium Dioxide Nanotubes in an Organic Pollutant Solution Containing Hydrogen Peroxide”, Nashrieh Shimi va Mohandesi Shimi Iran. 36(2017), 137-144. [http://www.nsmsi.ir/article\\_25999\\_en.html](http://www.nsmsi.ir/article_25999_en.html)
- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Azadeh Ebrahimian Pirbazari, “The effect of the anodization voltage on the geometrical characteristics and photocatalytic activity of TiO<sub>2</sub> nanotube arrays”, Nano-Structures & Nano-Objects. 8 (2016) 7-14. [doi:10.1016/j.nanoso.2016.09.001](https://doi.org/10.1016/j.nanoso.2016.09.001).

## Conferences

- Armin Hariri, Neda Gilani, **Javad Vahabzadeh Pasikhani**, “Investigating the Photoelectrochemical Performance of WO<sub>3</sub>-TiO<sub>2</sub> Nanorod Photoanodes in Water Splitting”, 11th International Chemical Engineering Congress & Exhibition, Fouman, Iran, 28 October 2020.
- Rezgar Habibi, Neda Gilani, **Javad Vahabzadeh Pasikhani**, Azadeh Ebrahimian Pirbazari, Sana Majidi, “Synthesis of Boron-doped TiO<sub>2</sub> nanotube in NH<sub>4</sub>BF<sub>4</sub> based electrolyte and investigating dopant effect: Insight into the Geometrical structure and photoelectrochemical activity”, 11th International Chemical Engineering Congress & Exhibition, Fouman, Iran, 28 October 2020.
- Armin Hariri, Neda Gilani, **Javad Vahabzadeh Pasikhani**, “Enhanced photoelectrocatalytic performance of TiO<sub>2</sub> nanorods in photoelectrochemical water splitting cell by using an alcoholic sacrificial agent”, 12th International Conference on Engineering and Technology, Oslo, Norway, 20 June 2019.
- Bahareh Ghorbani, Neda Gilani, **Javad Vahabzadeh Pasikhani**, Azadeh Ebrahimian Pirbazari, Rezgar Habibi, “Investigation on Dimensional Features and Photocatalytic Activity of Aligned TiO<sub>2</sub> Nanotubes prepared by Light-Assisted Anodization”, 7th International Congress on Nanoscience and Nanotechnology, Tehran, Iran, 26 September 2018.
- Rezgar Habibi, Neda Gilani, **Javad Vahabzadeh Pasikhani**, Azadeh Ebrahimian Pirbazari, Bahareh Ghorbani, “Enhanced Photocurrent Density as Well as the Photoelectrocatalytic Activity of Anodic Highly Ordered TiO<sub>2</sub> Nanotube Arrays by Tuning Their Geometrical Features”, 7th International Congress on Nanoscience and Nanotechnology, Tehran, Iran, 26 September 2018.
- Parisa Tafazoli Motie, Neda Gilani, **Javad Vahabzadeh Pasikhani**, Mahmood Akbari, “Enhancement of Hydrogen Evolution Over TiO<sub>2</sub> Nanotubes by Supporting Quantum Cu(II) Nanodots on Their Mesoporous Surfaces”, 7th International Congress on Nanoscience and Nanotechnology, Tehran, Iran, 26 September 2018.
- Mahmood Akbari, Neda Gilani, **Javad Vahabzadeh Pasikhani**, Parisa Tafazoli Motie, “Hydrogen Production via TiO<sub>2</sub> Nanotubes: The Impact of Reaction Time as Well as Ultrasound Irradiation on Morphology and Catalytic Activity of Nanotubes”, 7th International Congress on Nanoscience and Nanotechnology, Tehran, Iran, 26 September 2018.
- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Azadeh Ebrahimian Pirbazari, “Fabrication free-standing TiO<sub>2</sub> nanotube membranes with both ends open: Investigation the photocatalytic

property for degradation of 2,4-dichlorophenol”, 6th Biennial International Conference on Ultrafine Grained and Nanostructured Materials, Kish Island, Iran, 12 November 2017.

- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Azadeh Ebrahimian Pirbazari, “Effect of H<sub>2</sub>O<sub>2</sub> on TiO<sub>2</sub> nanotubes structure and photocatalyst properties for degradation of 2,4-dichlorophenol, International Conference on Researches in Science and Engineering”, Istanbul, Turkey, 28 July 2016.

## Patent

- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Rezgar Habibi, “Design and Fabrication of Photoelectrocatalyst System by Using Boron Incorporated-Titania Nanotubes Photoanode to Utilize in Dye Wastewater Purification”, [Registration Number: 99617](#), 17 November 2018.
- **Javad Vahabzadeh Pasikhani**, Neda Gilani, Azadeh Ebrahimian Pirbazari, “Fabrication of aligned Titania nanofilter by two-step anodization method for photocatalytic degradation of chlorophenolic compounds”, [Registration Number: 89461](#), 19 April 2016.

## TECHNICAL & SOFT SKILLS

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- **Programming Language:** C++; MATLAB
- **Chemical Engineering Software:** Aspen HYSYS; Aspen Plus; Design-Expert (DOE); COMSOL Multiphysics
- **Analytical techniques:** UV-Visible spectroscopy; FESEM; TEM; EDS; XRD; FTIR; DRS; BET; TGA; DTA; VSM; Photoluminescence (PL) Spectroscopy; Voltammetric analysis

## LANGUAGE SKILLS

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- **Persian:** Native
- **English:** Fluent
- **Arabic:** Elementary

## HOBBIES & INTERESTS

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- **Playing Football, Volleyball, Chess**
- **Fishing, Cycling, Mountain Climbing, Travelling**
- **Volunteering, Watching Movie and Scientific Documentaries**