

# Alireza Bahramian, PhD



## *Personal information:*

Date of birth: May 28, 1978  
Place of birth: Hamedan, Iran  
Marital status: Married, No children  
Language skills: Persian, English

## *Address:*

University: Chemical Engineering Department, Hamedan University of Technology, Hamedan, Iran. P.O. Box, 65155.  
E-mail: [bahramian@aut.ac.ir](mailto:bahramian@aut.ac.ir) [abahramian57@gmail.com](mailto:abahramian57@gmail.com)  
Mobile Phone: +98-09126387937

## *Education:*

**Ph.D.** (2005-2009) Chemical Engineering, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.  
Thesis title: Investigations into Fluidization of TiO<sub>2</sub> Nanoparticles Prepared in a Fluidized Bed Dryer and Computer Simulation Using CFD  
**M. Sc.** (2002-2004) Chemical Engineering, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.  
Thesis title: Investigation into Drying of Titanium dioxide in Pilot Plant Spouted Bed Dryer  
**B.Sc.** (1998-2002) Applied Chemistry, Bu-Ali Sina University, Hamedan, Iran  
Thesis title: Synthesis of TiO<sub>2</sub> Nanoparticles Using Sol-gel Process

## *Experiences:*

- Associate professor of Chemical Engineering, Department of Chemical Engineering, Hamedan University of Technology, Hamedan, Iran (2014-2016)
- Assistant Professor of Chemical Engineering, Department of Chemical Engineering, Hamedan University of Technology, Hamedan, Iran (2009-2014).
- Founder and Head of Department of Chemical Engineering, Hamedan University of Technology, Hamedan, Iran (2009-2014)
- Guest Researcher at Department of Chemical Engineering, University of the Basque Country, Bilbao, Spain (April-September 2009). Supervisor: Prof. Martin Olazar.
- Adjacent Professor at Sharif University of Technology, Tehran, Iran (2013).
- Assistant Researcher at Optic and Laser School of Iran (2006-2010).
- Selected Researcher for Asia Nano Camp. National University of Singapore and University of Science of Malaysia (Fall 2010)

### ***Teaching experiences:***

#### *Undergraduate courses:*

Fluid Mechanics (I and II), Thermodynamics for Chemical Engineers (I and II), Calculation of Refinery Engineering, Principles of Management in Chemical Process, Principles of Mass and Energy Balance, Application of Mathematics in Chemical Engineering, Unit Operation, Laboratory of Fluid Mechanics

#### *Graduate courses:*

Advanced Fluid Mechanics, Advanced Thermodynamics, Seminar

### ***Laboratory experiences:***

- Construction of laboratories for undergraduate students, Hamedan University of Technology. (Fluid Mechanics, Heat Transfer and Unit Operation Laboratory).

### ***Individual Skills***

- Familiar with Engineering Software's such as, C<sup>++</sup>, Aspen, MATLAB, Hysis, FORTRAN, Chem-Office and Office.
- Familiar with Mechanical Engineering Software: Fluent, MFIX.
- Ability to work with SEM, AFM, UV-vis, XRD, GC-MS equipments.

### ***Interested research areas and subjects:***

- CFD simulation of Fluidized beds
- Molecular dynamics Simulation of Thin Films and Materials
- Water and Wastewater Treatment
- Synthesis and Characterization of Nanomaterials
- Fabrication of Dye-sensitized Solar cells and Photovoltaic Cells

### ***Awards and Distinctions:***

- 1<sup>st</sup> Top Undergraduate Students
- 2<sup>th</sup> Top Graduate Students
- PhD Scholarship, Iranian Ministry of Science, Research and Technology (2005-2009).
- 1<sup>st</sup> Top Researcher of Hamedan University of Technology (2012 and 2014)
- 1<sup>st</sup> Top Researcher of Chemical Engineering Department (2011 and 2013)
- The Excellent Educational Member, Department of Chemical Engineering, Hamedan University of Technology. (2012)
- 1<sup>st</sup> Top Researcher of Hamedan University of Technology (2015)

### ***Industrial/Research Projects:***

- Fabrication of Semiconductor Nanostructured Films, Optic and Laser School of Iran. (2007-2009)
- Molecular Dynamics Simulation of TiO<sub>2</sub>/Polyaniline Thin Films, Hamedan University of Technology, (2010-2012)
- Investigation into Formation of Aldehydes and Ketones from Ozonation Process in Water Treatment, Power Ministry of Iran. (2013-2014)

### ***Article Review for Journals:***

- Journal of American Institute of Chemical Engineers (AIChE Journal), John Willey.
- Powder Technology, Elsevier.
- The international Journal Advances in Industrial Engineering and Management, American Scientific Publishers
- Chemical Engineering Research and Design
- Fuel, Elsevier.
- Surface and Coatings Technology, Elsevier.
- Environmental Progress & Sustainable Energy, John Wiley.

### ***Publication (Book):***

Fluid Mechanics with Laboratory Viewpoint" by: Dr. **A. Bahramian**, Jahad-Daneshghahi, Iranian Scientific Publisher, **2013**.

### ***Publications (Journals):***

- 1- **A. Bahramian**, Enhanced Photocatalytic Activity of Sol-Gel Derived Coral-like TiO<sub>2</sub> Nanostructured Thin Film, *Iran J. Chem. & Chem. Eng.* 35 (2016) 27-35.
- 2- **A. Bahramian**, A molecular view on a polyaniline–TiO<sub>2</sub> nanostructured thin film: Effect of temperature and pressure on the thermal, mechanical, and dynamical properties, *Thin Solid Films* 592 (2015) 39–53.
- 3- **A. Bahramian**, Daryoosh Vashae, In-situ fabricated transparent conducting nano fiber-shape polyaniline/coral-like TiO<sub>2</sub> thin film: Application in bifacial dye-sensitized solar cells, *Solar Energy Materials & Solar Cells* 143 (2015) 284–295.
- 4- M. Rasteh, F. Farhadi, **A. Bahramian**, Hydrodynamic characteristics of gas–solid tapered fluidized beds: Experimental studies and empirical models, *Powder Technology* 283 (2015) 355–367.

- 5- **A. Bahramian**, CFD Insight of the Flow Dynamics and Velocity Fields in a Gas Turbine Combustor with a Swirl Flame, Accepted for publish in *Iranian Journal of Chemical Engineering*, **2015**.
- 6- **A. Bahramian**, Hydrodynamic Characteristics of Dense Conical Fluidized Bed: CFD Simulation and Experimental Verification, *Iranian Journal of Chemical Engineering*, Vol. 12, No. 1 (**2015**) 41-58.
- 7- **A. Bahramian**. Viscoelastic Properties of Polyaniline-emeraldine Base Nanostructured Films: Experimental Results and Computational Simulations. Accepted for *Journal of Applied Polymer Science*. 32 (**2015**) 41858.
- 8- **A. Bahramian**. "Molecular Dynamics Simulation of Surface Morphology and Thermodynamic Properties of Polyaniline Nanostructured Film", *Surface & Interface Analysis*. 47 (**2015**) 1-14.
- 9- **A. Bahramian**. "The Effect of Heat Treatment on the Surface Structure of Polyaniline Nanostructured Film: an Experimental and Molecular Dynamics Approach", *Applied Surface Science*, 311 (**2014**) 508–520.
- 10- **A. Bahramian**. "High Conversion Efficiency of Dye-sensitized Solar Cells Based on Coral-like TiO<sub>2</sub> Nanostructured Films: Synthesis and Physical Characterization". *Industrial & Engineering Chemistry Research (ACS Publications)*, 52 (**2013**) 14837–14846.
- 11- **A. Bahramian**, M. Olazar, and G. Ahmadi. "Effect of Slip Boundary Conditions on the Simulation of Micro-particle Velocity Fields in a Conical Fluidized Bed". *AIChE Journal*, 59 (**2013**) 4502-4518.
- 12- **A. Bahramian**. "Study on Growth Rate of TiO<sub>2</sub> Nanostructured Thin Films: Simulation by Molecular Dynamics Approach and Modeling by Artificial Neural Network". *Surface & Interface Analysis*, 45 (**2013**) 1727– 1736.
- 13- **A. Bahramian**, H. Ostadi and M. Olazar. "Evaluation of Drag Models for Predicting the Fluidization Behavior of Silver Oxide Nanoparticle Agglomerates in a Fluidized Bed". *Industrial & Engineering Chemistry Research (ACS Publications)*, 52 (**2013**) 7569–7578.
- 14- **A. Bahramian** and M. Olazar. "Fluidization of Micronic Particles in a Conical Fluidized Bed: Experimental and Numerical. Study of Static Bed Height Effect". *AIChE Journal*, 58 (**2012**) 730-744.
- 15- **A. Bahramian**, and M. Olazar. "Profiling Solid Volume Fraction in a Conical Bed of Dry Micrometric Particles: Measurements and Numerical Implementations. *Powder Technology*, 212 (**2011**) 181–192.
- 16- E. Zaminpayma, **A. Bahramian**, H. Erfan Nia and M. Kalbasi. "Computer Simulation on TiO<sub>2</sub> Nanostructure Films and Experimental Study Using Sol-gel Method" *Journal of Cluster Science*, 20 (**2010**) 641-649.

- 17- **A. Bahramian** and M. Kalbasi "CFD modeling of TiO<sub>2</sub> Nano-Agglomerates Hydrodynamics in a Conical Fluidized Bed Unit with Experimental Validation" *Iranian J. Chemistry & Chemical Engineering*, 29 (2010) 1-17.
- 18- **A. Bahramian**, M. Kalbasi and M. Olazar."Influence of Boundary Conditions on CFD Simulation of Gas-particle Hydrodynamics in a conical Fluidized Bed unit", *International Journal of Chemical Reactor Engineering*, 7, (2009) A60.
- 19- M. Sasani Ghamsari and **A. Bahramian**. "High Transparent Sol-gel Derived Nanostructured TiO<sub>2</sub> thin film". *Materials Letters*, 62 (2008) 361-364. (This paper selected as "8<sup>th</sup> Top hottest Paper" in *Materials Letters* 2008)
- 20- M. Kalbasi, **A. Bahramian** and J. Khorshidi. "Prediction of Minimum Spout Velocity and Moisture Distribution of Potassium Chlorate Particles in a Spouted Bed Dryer". *Iranian J Chemistry & Chemical Engineering*, 26 (2007) 1-12.
- 21- J. Khorshidi, M. Kalbasi, **A. Bahramian** and M. Sohrabi, "Application and modeling of Methane Oxidation Reaction to Formaldehyde in a Fluidized Bed Reactor. *Iranian J Chemistry & Chemical Engineering*, 25 (2006) 14-21.

#### **Publications (Conferences):**

- 1- M. Rasteh, F. Frahadi, **A. Bahramian**. Study on hydrodynamic behavior of TiO<sub>2</sub> microparticles in a fluidized bed, The 6<sup>th</sup> International conference in application of CFD in industry, Esfahan, Iran, 14-17 May, 2015.
- 2- **A. Bahramian** and M. Olazar. "Fluidization of Nanoparticle Agglomerates in a Fluidized Bed: an Experimental Study and CFD Simulation". The 8<sup>th</sup> International Chemical Engineering Congress & Exhibition (ICChE) Kish, Iran, 24-27 February, 2014.
- 3- **A. Bahramian**. "A Study on TiO<sub>2</sub> Nanostructured Thin Films: Computer Simulation with Molecular Dynamics View and Experimental Work with Sol-gel Method". Asia Nano Camp. Singapore & Malaysia. 3-5 October 2011.
- 4- **A. Bahramian**, M. Kalbasi, H. Nazif, and I. Khazaei, "Hydrodynamic Characteristics of TiO<sub>2</sub> Nanoparticles in a conical fluidized bed and numerical simulation using CFD modeling", 17<sup>th</sup> annual (International) Conference on mechanical engineering-ISME 2009, Tehran, Iran. May 2009.
- 5- E. Jamshidi Sr., **A. Bahramian**, "Numerical Method (Quantize) for Prediction of Pollutant in River Simulated by Gas Chromatography Measurement", AIChE Conference, Spring National Meeting, Developing Environmental For study through Computational Chemistry and Modeling (TAZ11), New Orleans, United States, 8 April 2008.
- 6- E. Jamshidi Sr., **A. Bahramian**, "New Mathematical Method for Prediction of Pollutant in River Simulated by Gas Chromatography Measurement", AIChE

Conference, Spring National Meeting, Developing Environmental For study through Computational Chemistry and Modeling (TAZ10), New Orleans, United States, 8 April **2008**.

- 7- M. Sasani Ghamsari and **A. Bahramian**. "Preparation of the Nanostructure TiO<sub>2</sub> Thin Film with Dip-Coating Method" Iranian conference of physics. Proceeding of 5<sup>th</sup> Iranian Physics Conference, Shahroud, Iran. **2007**.
- 8- M. Kalbasi and **A. Bahramian**. "Hydrodynamics and drying characteristics of Potasium Chlorate particles in a spouted bed dryer", IWSID Symposium, India. 20-23<sup>rd</sup> December **2004**.

### *References*

#### **1- Professor Martin Olazar**

Department of Chemical Engineering, Faculty of Science and Technology  
University of the Basque Country. P.O. Box 644, 48080 Bilbao, Spain  
Phone: 946 012 527 [www.ehu.es/cpwv](http://www.ehu.es/cpwv)  
E-mail: [martin.olazar@ehu.es](mailto:martin.olazar@ehu.es)

#### **2- Professor Goodarz Ahamdi**

Dean, Wallace H. Coulter School of Engineering. Clarkson Distinguished Professor.  
Robert R. Hill '48 Professor of Mechanical and Aeronautical Engineering, 102  
CAMP Clarkson University.  
P.O. Box 5725. Potsdam, NY 13699-5725  
Phone: 315-268-2322 Fax: 315-268-4494  
E-mail: [ahmadi@clarkson.edu](mailto:ahmadi@clarkson.edu)

#### **3- Professor Javad Saien**

Professor in Chemical Engineering at Bu-Ali Sina University, Hamedan, Iran  
E-mail: [saien@basu.ac.ir](mailto:saien@basu.ac.ir)

#### **4- Professor Daryoosh Vashaee**

Professor in Department of Electrical and Computer Engineering, North Carolina  
State University, Raleigh, NC 27695, USA