Curriculum Vitae

Tayebeh Behzad
tbehzad@iut.ac.ir

Associate Professor
Department of Chemical Engineering
Isfahan University of Technology
Isfahan, Iran, 84156-83111
Tel: (+98) 31-33915629
Homepage: https://behzad.iut.ac.ir/
Gender: Female
DOB: Aug 23rd 1973

EDUCATION

2007-2009
Post-Doctoral Fellow
Center for Biocomposites and Biomaterials Processing, Department of Chemical Engineering and Applied Chemistry, University of Toronto, Canada.

2004-2007
Doctor of Philosophy
Department of Chemical Engineering and Applied Chemistry, University of Toronto, Canada.
Thesis: Loose Fiber Molding: Cure and Product Design Fundamentals.
Supervisor: Professor M. Sain

2002-2004
Master of Applied Science
Department of Chemical Engineering and Applied Chemistry, University of Toronto, Canada.
Thesis: Loose Fiber Molding: Cure and Product Design Fundamentals.
Supervisor: Professor M. Sain

1992-1997
Bachelor of Applied Science
Department of Chemical Engineering, Isfahan University of Technology (IUT), Iran.

ACADEMIC EXPERIENCE

Assistant and Associate Professor, Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran, (2009-present).

Director of Polymer Engineering Group, Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran, (2017 to 2022).

Teaching Experience

Associate Professor, Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran, 2015-present

Assistant Professor, Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran, 2009-2015

Course Taught

- Mass and Energy Balance
- Principle of Calculation in Chemical Engineering
- Basic of Chemical Engineering in Textile Engineering
- Physical and Mechanical Properties of Polymers
- Composites Engineering
- Polymeric Biocomposites
- Composite processing workshop

Research Experience

Application of 3D-printing technology for polymer-based composites development

- Preparation and Characterization of 3D printed GelMA wound dressing containing Cellulose Nanocrystals and Henna
- Design and Fabrication of Scaffold based on copolymerization of lignin and poly caprolactone using 3D printing in tissue engineering applications
- 3D printing of alginate/gelatin scaffold reinforced by chitin nanofibers with hydroxyl apatite coating for bone tissue engineering
- Design, preparation, and characterization of conductive hydrogel scaffold for heart tissue engineering

Extraction of cellulose nanofibers (CNFs) and lignin

- Extraction of lignin from different sources by different chemical and enzymatic methods
- Extraction of cellulose nanofibers by different optimized chemical and mechanical methods from different wood sources and non-wood sources including wheat straw, rice straw, bagasse, corn, carrot waste, and so on
- Chemical, morphological, and mechanical characterization of extracted nanocellulose fibers
- Surface modifications of cellulose nanofibers

Electrospun scaffolds for tissue engineering

- Optimization of electrospun processing conditions

- Fabrication of poly(vinyl alcohol)/nanohydroxy apatite/CNF, Poly(ϵ-caprolactone)/CNF, gelatin/PCL/CNF electrospun biocomposite scaffolds for tissue engineering application
- Chemical, morphological, thermal, mechanical, and bioactivity characterizations of scaffolds
- Development of hydrogels for 3D printing process

Development of bio nanocomposites for different applications including films, foams, hydrogels, etc.

- Manufacturing of LDPE/thermoplastic starch **nanocomposite** reinforced by CNF and modified CNF, LDPE/Thermoplastic starch/starch nanocrystals (SNC), and epoxy laminated composite reinforced by electrospun cellulose nanofibers
- Preparation and characterization of bio nanocomposite **foams** based on starch/CNF, starch/PVA/CNF, and starch/nanoclay,
- Synthesize and characterization of superabsorbent bio nanocomposite **hydrogels** such as chitosan/CNF, modified starch/chitin nanofibers extracted from *Rhizopus oryzae*, and starch-g-poly(acrylic acid)/CNF
- Bio nanocomposite **films** based on recycled polylactic acid /CNF, starch/CNF protein/oil/CNF, starch/protein/nano graphen platelets, chitosan/chitin nanofibers, , starch/chitin nanofibers from Mucor indicus, and water borne Polyurethane/CNF

Extraction of biofuel from different agro-based sources

- Efficient conversion of rice straw to fermentable sugars and bioethanol by sodium carbonate pretreatment
- Silica separation from rice straw for improvement of ethanol production using *Mucor Hiemalis*

2007-2008

Research Assistant, Post Doctoral, Centre for Biocomposites and Biomaterials Processing, University of Toronto.

- Developing a data base on the biomass flow in a pulp mill for a bio-refinery implementation plan.
- Developing a new biocomposite for automotive applications using resin infusion processing.

2002-2007

Research Assistant, Doctoral Candidate, University of Toronto.

- Characterizing natural fibers and polymers.
- Developing natural fiber composite manufacturing processes.
- Performing chemical, mechanical, thermal, and morphological characterization methods.
- Developing programming codes for simulation of heat transfer and kinetics.
- Simulating heat transfer and kinetics using finite element analysis software.

PUBLICATIONS

Patent

T. Behzad and M. Sain, "Thermo durable and high performance natural fiber molded composites manufacturing process", Patent pending, ***US pat Publication,*** No. 2005-0245161.

Book

T. Behzad, M. Ahmadi, "Bio Nanofibers", The second Chapter from the book "Nanofiber Research - Reaching New Heights", INTECH, 13-28, 2016.

T. Behzad, "A new developed environmentally friendly high performance composite: Loose fiber molding: Cure and product design fundamentals", VDM Verlag Dr. Muller, 1-190, 2009

Refereed Journal Papers

1. M. Mohammadalipour, **T. Behzad**, "Optimization and characterization of polyhydroxybutyrate/lignin electro-spun scaffolds for tissue engineering", International Journal of Biological Macromolecules, Vol. 218, pp.317-334, 2022.

2. Z. Moazzami Goudarzi, **T. Behzad**, L. Ghasemi-Mobarakeh,M. Kharaziha, "An investigation into influence of acetylated cellulose nanofibers on properties of PCL/Gelatin electrospun nanofibrous scaffold for soft tissue engineering", Polymer, Vol. 213, pp. 1-11, 2021.

3. M. Heidarzadeh, **T. Behzad**, A. Mehrabani, "Development of a continuous fixed-bed column to eliminate cadmium(II) ions by starch-g-poly(acrylic acid)/cellulose nanofiber bio-nanocomposite hydrogel", Environmental Science and Pollution Research, Vol. 28, 2021.

4. Z. Moazzami Goudarzi, **T. Behzad**. A. Sheykhzadeh**,** "Effect of hydrophobically modified extracted starch nanocrystal on the properties of LDPE/thermoplastic starch (TPS)/PE-g-MA nanocomposites", Vol. 139, Issue 2, 2022.

5. E. Bagheri, H. Rahnama, M. Hasannia, **T. Behzad**, P. Mosaddegh, "Oriented polylactic acid/graphene oxide nanocomposites with high mechanical and thermal properties", Journal of Thermoplastic materials, https://doi.org/10.1177%2F08927057211038625, 2021.

6. Z. Moazzami Goudarzi, **T. Behzad**, L. Ghasemi-Mobarakeh,M. Kharaziha, Mohammadsaeid Enayati, "Structural and mechanical properties of fbrous poly (caprolactone)/gelatin nanocomposite incorporated with cellulose nanofibers", Polymer Bulletin, Vol. 77, pp. 717-740, 2020.

7. B. Bahrami, **T. Behzad**, F. Salehinik, A. Zamani, P. Heidarian, "Inncorporation of Extracted Mucor indicus Fungus Chitin Nanofibers into Starch Biopolymer: Morphological, Physical, and Mechanical Evaluation", Vol. 73, Issue 7-8, 2021.

8. A. Moslemi, M. Zolfagharloo, **T. Behzad**, A. Pizzi, "Addition of cellulose nanfibers extracted from rice straw to urea formaldehyde resin; effect of adhesive characteristics and medium density fiber board density properties", International journal of adhesives and adhesion, Vol. 99, 2020.

9. E. Bagheri, P. Mossadegh, **T. Behzad**, "Mechanical, thermal, and structural properties of uniaxially drawn polylactic acid/halloysite nanocomposites", Journal of Applied Polymer Science, Vol. 137, Issue 38, pp. 1-9, 2020.

10. F. Salehinik, T. Behzad , A. Zamani, B. Bahrami, "Extraction and characterization of fungal chitin nanofibers from Mucorindicus cultured in optimized medium conditions", International Journal of Biological Macromolecules, Vol. 167, pp. 1126-1134, 2021.

11. M. Zolfagharlou Kouhi, **T. Behzad**, L. Ghasemi-Mobarakeh, A. Allafchian, Z. Moazzami Goudarzi, and M. S. Enayati, "Proceeding toward the development of poly(ε-caprolactone) /cellulose microfibrils electrospun biocomposites using a novel ternary solvent system", The Journal of The Textile Institute, Vol. 111, No. 2, pp.249-259, 2020.

12. N. Bahadoran Baghbadorani, **T. Behzad**, M. Karimi, N. Etesami, "Modelling of water absorption kinetics and biocompatibility study of synthesized cellulose nanofiber-assisted starch-graft-poly(acrylic acid) hydrogel nanocomposites", Cellulose, pp. 1-19, 2020.

13. H. Ramazani, T. Behzad, R. Bagheri, "Synergistic effect of graphene oxide nanoplatelets and cellulose nanofibers on mechanical, thermal, and barrier properties of thermoplastic starch", Polymers for Advanced Technology, Vol. 31, Issue 3, pp. 1-13, 2019.

14. F. Samadani, **T. Behzad**, M. S. Enayati, "Facile strategy for improvement properties of whey protein isolate/walnut oil bio-packaging films: Using modified cellulose nanofibers", International Journal of Biological Macromolecules, Vol.139, 858–866, 2019.

15. B. Bahrami, **T. Behzad**, A. Zamani, P. Heidarian, and B. Nasri-Nasrabadi., "Synthesis and characterization of carboxymethyl chitosan superabsorbent hydrogels reinforced with sugarcane bagasse cellulose nanofibers", Materials Research Express , Vol. 6, No. 6, pp 1-9, 2019.

16. E. Mansoori1, **T. Behzad**, A. R. Shafieizadegan-Esfahani, "Preparation and characterization of corn starch/soy protein biocomposite film reinforced with graphene and graphene oxide nanoplatelets" Polymers for Advanced Technology, Vol.30, Issue 9, pp.2301-2312, 2019.

17. N. Bahadoran Baghbadorani, **T. Behzad**, N. Etesami, P. Heidarian, "Removal of Cu2+ ions by cellulose nanofibers-assisted starch-*g*-poly(acrylic acid) superadsorbent hydrogels", Composites Part B, Vol. 176, pp. 1-10, 2019.

18. M.S. Enayati, R.E. Neisiany , P. Sajkiewicz, **T. Behzad**, P. Denis, and F. Pierini F., "Effect of nanofiller incorporation on thermomechanical and toughness of poly (vinyl alcohol)-based electrospun nanofibrous bionanocomposites; Theoretical and Applied Fracture Mechanics, Vol. 99, 44-50, 2019.

19. M. Enayati, **T. Behzad**, R. Bagheri, L. Ghasemi, "Theoretical and experimental study of the stiffness of electrospun composites of poly (vinyl alcohol), cellulose nanofibers, and nanohydroxy apatite", ***Cellulose***, Vol. 25, Issue 1, 65–75, 2018.
20. M. Enayati, **T. Behzad**, R. Bagheri, L. Ghasemi, "Development of electrospun poly (vinylalcohol)-based bionanocomposite scaffolds for bone tissue engineering", ***Journal of Biomedical Materials Research Part A***, Vol.106, Issue 104, 1111-1120, 2018.

21. B. Bahrami, **T. Behzad**, A. Zamani, P. Heidarian, and B. Nasri-Nasrabadi., "Optimal Design of Ozone Bleaching Parameters to Approach Cellulose Nanofibers Extraction from Sugarcane Bagasse Fibers", Journal of Polymers and the Environment, Vol. 26, Issue 10, pp 4085–4094, 2018.

22. M. Hejazi, T. Behzad, P. Heidarian, and B. Nasri-Nasrabadi, "A study of the effects of acid, plasticizer, cross-linker, and extracted cginin nanfibers on the properties of chitosan biofilm", Composites Part A: Applied Science and Manufacturing, Vol. 109, pp.221-231. 2018.

23. M. Ahmadi, **T. Behzad,** R. Bagheri, P. Heidarian, "Effect of cellulose nanofibers and acetylated cellulose nanofibers on the properties of LDPE/thermoplastic starch/PE-g- maleic anhydride blend", ***International polymer***, Vol. 67, Issue 8, 993-1002, 2018.
24. P. Heidarian, **T. Behzad**, K. Karimi, M. Sain, "Properties investigation of recycled poly(lactic acid) reinforced by cellulose nanofibrils isolated from bagasse, ***Polymer composites***, Vol. 39, Issue 10, 3740-3749, 2018.
25. W. Mohammadi, B. Molki, P. Heidarian, **T. Behzad**, M. Sadeghi, and R. Bagheri, "Effect of calcium carbonate (CaCO3) nanoparticles on barrier properties and biodegradability of polylactic Acid (PLA)", ***Fibers and Polymers***, Vol. 18, Issue 11, 2041-2048, 2017.
26. W. M. Aframehr, B. Molki, P. Heidarian, **T. Behzad**, M. Sadeghi, R. Bagheri, "Effect of calcium carbonate nanoparticles on barrier properties and biodegradability of polylactic acid", ***Fibers and Polymers***, Vol.18, Issue 11, 2041-2048, 2017
27. M. Ahmadi, **T. Behzad**, R. Bagheri, M. Ghiaci, M. Sain, "Topochemistry of cellulose nanofibers resulting from molecular and polymer grafting", ***Cellulose***, Vol. 24, No.5, 2139-2152, 2017.
28. M. Ahmadi, **T. Behzad**, R. Bagheri, "Reinforcement effect of poly (methylmethacrylate)-g-cellulose nanofibers on LDPE/thermoplastic starch composites: preparation and characterization", ***Iranian Polymer Journal***, Vol. 26, No.10, 733-742, 2017.
29. P. Flamarzpour, **T. Behzad**, A. Zamani, "Preparation of nanocellulose reinforced chitosan films, cross-linked by adipic acid", ***International Journal of Molecular Science***, Vol.18, 396-408, 2017.
30. P. Heidarian, **T. Behzad**, M. Sadeghi, "Investigation of cross-linked PVA/starch biocomposites reinforced by cellulose nanofibrils isolated from aspen wood sawdust", ***Cellulose***, Vol. 24, Issue 8, 3323-3339, 2017.
31. P. Shahbazi, **T. Behzad**, P. Heidarian, "Isolation of cellulose nanofibers from poplar wood and wheat straw: optimization of bleaching step parameters in a chemo-mechanical process by experimental design", ***Wood Science and Technology***, Vol. 51, Issue 5, 1173–1187, 2017.

32. P. Heidarian, **T. Behzad**, K. Karimi, M. Sain, "Industrial-scale preparation of nanocellulose-reinforced biocomposites", ***SPE Plastics research online***, 10.2417/spepro.006960, 2016.
33. M. Enayati, **T. Behzad**, P. Sajkiewicz, R. Bagheri, L. Ghasemi, S. Kuśnieruk, J. Rogowska-Tylman, Z. Pahlevanneshan, E.Choinska & W. Swieszkowski, "Fabrication and characterization of electrospun bionanocomposites of poly (vinyl alcohol)/nanohydroxyapatite/cellulose nanofibers", ***International Journal of Polymeric Materials and Polymeric Biomaterials***, Vol. 65, No. 13, 660–674, 2016.
34. A. Jahanbaani, **T. Behzad**, S. Borhani, M. Karimi Darvanjooghi, "Electrospinning of cellulose nanofibers mat for laminated epoxy composite production", Vol. 17, Issue 9, 1438–1448, Fibers and Polymers, 2016.
35. P. Heidarian, **T. Behzad**, K. Karimi, "Isolation and characterization of bagasse cellulose nanofibrils by optimized sulfur-free chemical delignification", ***Wood Science and Technology***, Vol. 50, Issue 5, 1071–1088, 2016.
36. Z. Davarpanah, J. keramat, N. Hamdami, M. Shahedi, **T. Behzad**, "Dispersion of silicate layers in zein/montmorillonite composite films using two sonication methods", ***Journal of Agriculture Science and Technology***, Vol. 18, 1523-1530, 2016.
37. M. Enayati, **T. Behzad**, P. Sajkiewicz, R. Bagheri, L. Ghasemi, W. Łojkowski, Z. Pahlevanneshan, M. Ahmadi, "Crystallinity study of electrospun poly (vinyl alcohol) nanofibers: effect of electrospinning, filler incorporation, and heat treatment", ***Iran Polymer Journal***, Vol. 25, 647–659, 2016.
38. S. Ahmadzadeh, A. Nasirpour, J. Keramat, N. Hamdami, **T. Behzad**, S. Desobry, L. Aranda, M. Vilasi, S. Desobry, "Structural and mechanical properties of clay nanocomposite foams based on cellulose for the food-packaging industry", ***Journal of Applied Polymer Science***, Vol. 133, Issue 2, 2016.
39. H. Khaleghian, K. Karimi, **T. Behzad**, "Ethanol production from rice straw by sodium carbonate pretreatment and Mucor hiemalis fermentation", ***Industrial Crops and Products***, Vol. 76, 1079–1085, 2015.
40. M. Alidadi, **T. Behzad**, R. Bagheri. "Preparation and characterization of low-density Polyethylene/thermoplastic starch composites reinforced by cellulose nanofibers", ***Polymer Composites***, Vol. 36, Issue 12, 2309-2316, 2015.
41. M. Alidadi, **T. Behzad**, R. Bagheri. "Optimization of acid hydrolysis conditions to improve cellulose nanofibers extraction from wheat straw", ***Fibers and Polymers***, Vol.16, No.3, 579-584, 2015.
42. S. Ahmadzadeh, A. Nasirpour, J. Keramat, N. Hamdami,**T. Behzad**, S. Desobry, "Nanoporous cellulose nanocomposite foams as high insulated food packaging materials", ***Colloids and Surfaces A: Physicochemical and Engineering Aspects***, Vol. 468, 201-210, 2015.
43. B. Nasri Nasrabadi, **T. Behzad**, R. Bagheri. "Extraction and characterization of rice straw cellulose nanofibers by an optimized chemomechanical method", ***Journal of Applied Polymer Science***, Vol. 40063, No. 131, 1-7, 2014.

44. B. Nasri Nasrabadi, **T. Behzad**, R. Bagheri. "Preparation and characterization of cellulose nanofiber reinforced thermoplastic starch composites", ***Fibers and Polymers***, Vol. 15, No.2, 347-354, 2014.
45. B. Nasri Nasrabadi, M. Mehrasa, M. Rafienia, Sh. Bonakdar, **T. Behzad**, Sh. Gavanji, " Porous starch/cellulose nanofibers composite prepared by salt leaching technique for tissue engineering", ***Carbohydrate Polymer***, 2014.
46. R. Sedaqatvand, M. Nasr Esfahany, **T. Behzad**, M. Mohseni, M.M. Mardanpour, "Parameter estimation and characterization of a single-chamber microbial fuel cell for dairy wastewater treatment", ***Bioresource Technology***, No. 146, 247-253, 2013.
47. R. Sedaqatvand, M. Nasr Esfahany, **T. Behzad**, M.M. Mardanpour, "Comparison of conduction based and mediator based models for microbial fuel cells", ***Journal of Petroleum Science and Technology,*** Vol. 1, No. 2, 2013.
48. N. Poornejad, K. Karimi, **T. Behzad**, "Improvement of saccharification and ethanol production from rice straw by NMMO and [BMIM][OAc] pretreatments", ***Industrial Crops and Products,*** Vol.41, 408-413, 2013.
49. S. M. Salehi, K. Karimi, **T. Behzad**, N. Poornejad, "Efficient conversion of rice straw to bioethanol using sodium carbonate pretreatment", Energy and Fuel, …. 2012.
50. M. M. Mardanpour, M. NasrEsfahany, **T. Behzad**, R. Sedaqatvand, "Single chamber microbial fuel cell with spiral anode for dairy wastewater treatment", ***Biosensors and Bioelectronics,*** Biosensors and Bioelectronics, Vol. 38, 264-269, 2012.
51. R. Sedaqatvand, M. Nasr Esfahany, **T. Behzad**, M. Mardanpor, "Comparison of conduction based and mediator based models for microbial fuel cells", ***Journal of Petroleum Science and technology***, Vol.1, No.2, 24-29, 2011.
52. **T. Behzad** and M. Sain, "Surface and interface characterization of untreated and SMA Imide-treated hemp fiber/acrylic composites, ***Polymer Composites***, 681-690, 2009.
53. **T. Behzad** and M. Sain, "Measurement and prediction of thermal conductivity for hemp fiber reinforced composites", ***Polymer Engineering and Science***, Vol. 47, Issue 7, 977-983, 2007.
54. **T. Behzad** and M. Sain, "Finite Element Modeling of polymer curing in natural fiber reinforced composites", ***Composite Science and Technology Journal***, Vol. 67, 1666-1673, 2007.
55. **T. Behzad** and M. Sain, "The effect of fiber surface treatment on the performance of hemp fiber/acrylic composites for automotive structural parts", ***SAE Transactions Journal***, 2006.
56. **T. Behzad** and M. Sain, "Cure simulation of hemp fiber acrylic based composites during sheet molding process", ***Polymers and Polymer Composites Journal***, Vol. 13, No. 3, 2005.
57. **T. Behzad** and M. Sain, "Cure study of an acrylic resin to develop natural fiber composite", ***Journal of Applied Polymer Science***, Vol. 92, 757-762, 2004.

Refereed Conference Papers and Oral Presentations

1. E. Mansoori, **T. Behzad**, "The effect of nano graphene platelets addition on starch/protein film properties", ***7th national conference&2th International Conference on Applications of Chemistry in Advanced technology***, Tehran, Iran, December 2017.
2. F. Samadani, **T. Behzad**, " Study on the opacity, mechanical properties and water vapor permeability of films based on isolated whey protein and walnut oil", ***6th National Conference &2th International Conference on Applications of Chemistry in Advanced Technology***, Isfahan, Iran, December 2016.
3. N. Bahadoran, **T. Behzad**, N. Etesami, "Synthesis and Investigation of swelling behavior of hydrogel superabsorbent based on starch-graft-poly(acrylic acid) ", ***6th National Conference &2th International Conference on Applications of Chemistry in Advanced Technology***, Isfahan, Iran, December 2016.
4. H. Ramazani, **T. Behzad**, R. Bagheri, "Investigation of mechanical properties and light absorbance of biocomposite films based on thermoplastic starch and cellulose nanofibers", ***6th National Conference &2th International Conference on Applications of Chemistry in Advanced Technology***, Isfahan, Iran, December 2016.
5. E. Aghaee, **T. Behzad**, H. Ziluee, "Extraction of chitin fibers from Rhizopus oryzae", ***6th National Conference & 2th International Conference on Applications of Chemistry in Advanced Technology***, Isfahan, Iran, December 2016.
6. P. Heidarian, **T. Behzad**, M. Maniei, K. Karimi, M. Sain, "Morphological and mechanical investigation of recycled PLA bio nanocomposite reinforced by cellulose nanofibers", ***12th International Seminar on Polymer Science and Technology***, Tehran, Iran, November 2016.
7. P. Heidarian, M. Maniei, A. Karimi, **T. Behzad**, "Elucidating the influence of cellulose nanofiber on the microstructure of starch nanocomposite foams", ***12th International Seminar on Polymer Science and Technology***, Tehran, Iran, November 2016.
8. P. Heidarian, **T. Behzad**, K. Karimi, F. Ghaemmaghamy, " Extraction of cellulose nanofibrils from a non-wood lignocellulosic source for bio nanocomposite manufacturing, ***5th International Biennial Conference on Ultrafine Grained and Nanostructured Materials (UFGNSM15)***, Procedia Material Science, Tehran, Iran, November 2015.
9. F. Salehinik, **T. Behzad**, A. Zamani, "Extraction of chitin nanofibers from Mucor indicus in optimum conditions for higher recovery", ***International conference on Environmental Science , Engineering, and Technology (CESET)***, Tehran, Iran, May 2015.
10. M. Ahmadi, T. Behzad, R. Bagheri, "Surface modification of extracted nanocellulose fibers from wheat straw", ***The first International Congress on Earth, Space, and clean Energy***, Ardabil, Iran, November 2015.
11. M. Hejazi, **T. Behzad**, A. Zamani, "Extraction and characterization of chitin nanofibers from shrimp", ***Comprehensive International Congress on Iran Environment***, Tehran, Iran, September 2015.
12. B. Bahrami, **T. Behzad**, A. Zamani, "Preparation and characterization of extracted nanocellulose fiber by Ozone bleaching", ***National Conference on Environment & Green Industry***, Isfahan, Iran, December 2014.

13. F. Naderi, M. Nasr Esfahany, **T. Behzad**, M. Mardanpor, "Dairy wastewater treatment in continuous mode by using Annular Single Chamber Microbial Fuel Cell (ASCMFC)", ***The 8th International Chemical Engineering Congress&Exhibition,*** Kish, Iran, 24-27 February, 2014.
14. A. Moosavi, A. Dadkhah, T. Behzad, "Application of single chamber microbial fuel cell with annular configuration in treatment of oily wastewater and power generation", ***The 8th international Chemical Engineering Congress&Exhibition (ICHEC)***, Kish, Iran, February 2014.
15. M. Alidadi, **T. Behzad**, R. Bagheri, H. Hajiha, "Preparation and Characterization of Polyethylene/Starch/Cellulose Nanofiber Composites", ***Advancements in Fiber-Polymer Composites: Wood Fiber, Natural Fibers and Nanocellulose Conference,*** Milwaukee, Wisconsin USA May 6-7, 2013.
16. A. Karimi, T. Behzad, P. Heidarian, "Preparation and characterization of extracted cellulose nanofibers from wheat straw", ***2nd National Conference of Nanotechnology from theory to Application***", Isfahan, Iran, January 2013.
17. P. Heidarian, T. Behzad, A. Karimi, "Investigation of Nanocellulose fiber dispersion on Mechanical properties of recycled Poly (Lactic acid), ***2nd National Conference of Nanotechnology from theory to Application***", Isfahan, Iran, January 2013.
18. P. Shahbazi, T. Behzad, "Review on nanocellulose extractions methods", ***1st National Conference of Nanotechnology from theory to Application***", Isfahan, Iran, May 2012.
19. M. Alidadi, **T. Behzad**, B. Nasri, R. Bagheri, "Characterization of extracted nanocellulose from chemically treated wheat straw", ***1st National Conference of Nanotechnology from theory to Application***", Isfahan, Iran, May 2012.
20. M. Mardanpor, M. Nasr Esfahany, **T. Behzad**, R. Sedagatvand, " Enhancement of Power Generation with Improved Single Chamber Microbial Fuel Cell Configuration for Dairy Wastewater treatment", ***The 7th International Chemical Engineering Congress&Exhibition***, Kish, Iran, 21-24 November, 2011.
21. R. Sedagatvand, M. Nasr Esfahany, **T. Behzad**, M.Mardanpor, "Numerical investigation of Current Density of a Microbial Fuel cell", ***The 7th International Chemical Engineering Congress&Exhibition***, Kish, Iran, 21-24 November, 2011.
22. H. Khaleghian, K. Karimi, **T. Behzad**, R. Asachi, "Separation of Silica from Rice Straw to Improve Its Hydrolysis for Ethanol Production", ***The 2nd International Conference on Environmental Pollution and Remediation,*** *Montreal, Quebec, Canada, 28-30 August, 2012.*
23. R. Sedagatvand, M. Nasr Esfahany, **T. Behzad**, M. Mardanpor, " Effect of Concentration Boundary Layer on Anodic Compartment Performance of Microbial Fuel Cells in Continuous Flow", ***The 2nd Conference on Hydrogen and Fuel Cell***, HFCC 1154, K. N. Toosi University of Technology, 2012.
24. R. Sedagatvand, M. Nasr Esfahany, **T. Behzad**, M.Mardanpor, " Numerical Investigation of Biofilm Conductivity Effect on Microbial Fuel Cell Performance", ***The 2nd Conference on Hydrogen and Fuel Cell***, HFCC 1155, K. N. Toosi University of Technology, 2012.
25. M. M. Mardanpour, M. Nasr Esfahany, **T. Behzad**, R. Sedaqhatvand, F. Sharifi, F. Naderi, "Development of a Single Chamber Microbial Fuel Cell for Electricity Generation from Dairy

Wastewater", ***The 2nd Conference on Hydrogen and Fuel Cell***, HFCC 1119, K. N. Toosi University of Technology, 2012.

26. M. M. Mardanpour, M. Nasr Esfahany, **T. Behzad**, R. Sedaqhatvand, F. Sharifi, F. Naderi, "Factors Affecting the Performance of Single Chamber Microbial Fuel Cell Using a Novel Configuration", ***The 2nd Conference on Hydrogen and Fuel Cell***, HFCC 1118, K. N. Toosi University of Technology, 2012.
27. N. Poornejad, S.M. Amin Salehi, K .Karimi, **T. Behzad**, M.J. Taherzadeh "Improvement of ethanol production from rice straw by N-methylmorpholine-N-oxide (NMMO) pretreatment", ***World Renewable Energy Congress,*** Sweden, May 2011.
28. M. Sain, **T. Behzad**, and M. Pervaiz, "Market and Product Opportunities for WPCs/NFPCs Beyond Building Industry", ***Wood fiber Plastic Conference***, Madison, USA, May 2007.
29. **T. Behzad** and M. Sain, "Numerical Modeling of Hemp Fiber/ Thermoset Composites for Automotive Application", ***Wood fiber Plastic Conference***, Toronto, Canada, May 2006.
30. **T. Behzad** and M. Sain, "Simulation of Heat Transfer and Cure in the Molding Process of the Hemp Fiber/Thermoset Composite, ***6th Global Wood and Natural Fiber Composites Symposium***, Kassel, Germany, April 2006.
31. **T. Behzad** and M. Sain, "The Effect of Fiber Surface Treatment on the Performance of Hemp Fiber/Acrylic Composites for Automotive Structural Parts", ***SAE Technical Paper***, USA, April 2006.
32. **T. Behzad**, "Sheet molding of natural fiber plastic composite automotive parts", Spec-tech-cle feature article, ***The Newsletter of Ontario Section of SPE***, 2005.
33. **T. Behzad** and M. Sain, "Process for Manufacturing a High Performance Natural Fiber Composite by Sheet Molding", ***SPE Conference***, USA, 2004.
34. **T. Behzad** and M. Sain, "Finite Element Approach for Cure Simulation of Natural Fiber Composites", ***ACS Conference***, San Diego, USA, 2005.
35. **T. Behzad**, S. Panthapulakkal, and M. Sain, "Process for Manufacturing a High Performance Natural Fiber Composite by Sheet Molding", USA, ***SPE conference***, 2004.

Poster Presentations

1. B. Nasri, T. Behzad, R. Bagheri, H. Hajiha, "Biodegradable Starch Based Cellulose Nanofiber Composites", ***Advancements in Fiber-Polymer Composites: Wood Fiber, Natural Fibers and Nanocellulose Conference,*** Milwaukee, Wisconsin USA May 6-7, 2013.
2. N. Poornejad, K .Karimi, T. Behzad, "Improvement of ethanol production from rice straw by N-methylmorpholine-N-oxide (NMMO) pretreatment, ***7th National Biotechnology Congress of I.R. Iran***, Niroo Research Institute, Tehran, Iran, September, 2011.
3. S. Panthapulakkal, T. Behzad, S. Law, T. Kuboki, Y.H. Lee, M. Sain, and C.B. Park, "High performance natural fiber composites for automotive applications", First and second round winner in the national ***Auto-21 HQP Conference*** poster competition, Winsor, Canada, 2007.

4. S. Panthapulakkal, T. Behzad, S. Law, T. Kuboki, Y.H. Lee, Z. Wang, M. Sain, C.B. Park, and H. Xiao, "High performance natural fiber thermoset composites for automotive applications", First round winner in the national ***Auto-21 HQP Conference*** poster competition, Canada, 2006.
5. T. Behzad and M. Sain, "Development of Natural Fiber Composites for Automotive Applications", ***OCE Conference***, Toronto, Canada 2006.
6. T. Behzad and M. Sain, "High Performance Natural Fiber Thermoset Composites for Automotive Applications", ***The pulp and paper centre graduate student research conference***, Winner of the John Peter Reeve Memorial Award for the best poster, University of Toronto, Toronto, Canada, 2006.
7. T. Behzad and M. Sain, "High Performance Natural Fiber Thermoset Composites for Automotive Applications", ***The pulp and paper centre graduate student research conference***, Winner of the John Peter Reeve Memorial Award for the best poster, University of Toronto, Toronto, Canada, 2005.
8. T. Behzad, S. Panthapulakkal, D. Gulati, S. Law, M.Sain and B. V. Kokta, "High Performance Natural Fiber Composites for Automotive Applications", Round one winner in the national ***Auto-21 HQP Conference*** poster competition, Oshawa, Canada, 2005.
9. T. Behzad and M. Sain, "High Performance Natural Fiber Thermoset Composites for Automotive Applications", ***ACS Conference***, San Diego, USA, 2005.
10. T. Behzad and M. Sain, "Process to Manufacture a High Performance Natural Fiber Composite by Sheet molding", ***Progress in Wood Fibre-Plastic Composites Conference***, Toronto, Canada, 2004.
11. T. Behzad and M. Sain, "Characterization of an Environmentally Friendly Acrylic Resin to Manufacture High Performance Bio-composite", ***The pulp and paper centre graduate student research conference***, University of Toronto, Toronto, Canada, 2004.
12. T. Behzad and M. Sain, "Process to Manufacture a High Performance Natural Fiber Composite by Sheet Molding", ***Auto-21 HQP conference***, Winsor, Canada 2004.
13. T. Behzad and M. Sain, " Characterization of an Environmentally Friendly Acrylic Resin for manufacturing High Performance Bio-composites", ***Canadian chemical engineering Conference***, Hamilton, Canada, 2003.

PROFESSIONAL TRAINING

Workplace Safety Training Course

Chemical Engineering and Applied Chemistry, University of Toronto, Canada, 2003.

The Paper Business Short Course

Chemical Engineering and Applied Chemistry, University of Toronto, Canada, 2004.

Pulp and Paper Technological Tour in Brazil

Pulp and Paper Centre, Chemical Engineering and Applied Chemistry, University of Toronto, Canada, 2004**.**

RCAT Dream Weaver Series-Web Designing

University of Toronto, Canada, 2007.

EMPLOYMENT EXPERIENCE

2015-present

Associate professor, Director of Polymer Engineering Group, Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran

2008-2015

Assistant professor, Department of Chemical Engineering, Isfahan University of Technology, Isfahan, Iran

2007-2008

Research Associate, Post Doctoral Fellow, Center for Biocomposites and Biomaterials Processing, Department of Chemical Engineering and Applied Chemistry, University of Toronto, Canada.

RELATIVE EXPERIENCES

1. Guest editor for The special issue of "Bioplastic and Biocomposite Materials: Current Situation and Future Perspectives" for Hindawi Publishing Corporation
2. Structural and heat transfer simulation and modeling using finite element soft ware such as MATLAB, ANSYS, FEMLAB, and COMSOL.
3. Composite manufacturing processes such as compression molding, resin transfer molding, resin infusion molding, and characterization equipment such as DSC, IGC, SEM, Instron tensile, and flexural test operation.

SCHOLARSHIPS AND ACADEMIC AWARDS

1. IUT research fund, 2009-2017, Isfahan, Iran
2. Award of Merit, Discovery 2006, Ontario Centre of Excellence (OCE), ON, Canada.
3. Chemical Engineering and Applied Chemistry Dept., University of Toronto, Research Assistantship, 2006 –2007, 10,000 CAD$.
4. University of Toronto Fellowship, 2006-2007, 3,000 CAD$.
5. Ontario Graduate Scholarship (OGS), University of Toronto, 2005- 2006, 15,000 CAD$.
6. Chemical Engineering and Applied Chemistry Dept., University of Toronto, Research Assistantship, 2005 –2006, 5,000 CAD$.
7. Chemical Engineering and Applied Chemistry Dept., University of Toronto, Research assistantship, 2004 –2005, 4,500 CAD$.
8. Edward Jarvis Tyrrell Fellowship, University of Toronto, 2004-2005, 15,000 CAD$.
9. University of Toronto Fellowship, 2003-2004, 5,000 CAD$.
10. Chemical Engineering and Applied Chemistry Dept., University of Toronto, Research Assistantship, 2003 –2004, 8,800 CAD$.

11. Chemical Engineering and Applied Chemistry Dept., University of Toronto, Research Assistantship, 2002 –2003, 3,500 CAD$.

LICENSES & MEMBERSHIPS

- SAE International.
- ASME International.
- TAPPI International Student Chapter at the University of Toronto (TISCUT)