

AMIR HOSSEIN BEHRAVESH, PhD, P.Eng

Faculty of Mechanical Eng., Tarbiat Modares University, Tehran, Iran

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EDUCATION

- 1993 -1998 **Ph.D.**, University of Toronto, Mechanical and Industrial Engineering, CANADA
Major: Manufacturing
Thesis Topic: Extrusion Processing of Low-Density Microcellular Foams
- 1991-1993 **M.Sc.**, University of New Brunswick, Mechanical Engineering, CANADA
Major: Manufacturing and Material Science
Thesis Topic: Mechanical and Microstructural Properties of Low Carbon Equivalent Austempered Ductile Iron
- 1984-1989 **B.Sc.**, Sharif University of Technology, Mechanical Engineering, IRAN
Major: Vibration
Project Topic: Road Vehicle Dynamics of Tandem-Axle Road Trucks

OCCUPATION

- From 1998 **Associate Professor:** Production and Manufacturing Group, Department of Mechanical Engineering, Tarbiat Modares University (Fully Accredited Graduate University), Tehran, Iran
- Head of Production and Manufacturing Group:** 2000-2008
- Visiting professor,** University of Toronto (Professor Chul B. Park), Canada: 2008-2009
Visiting professor, UOIT (Professor Ghaus Rizvi), Canada: 2009-2010
Researcher, University of Toronto (Professor Mohini Sain), Canada: (2014 -2016)

RESEARCH INTERESTS

Plastic Materials and Composite Processing: Plastics and their composites play the key role in the production of parts in various sectors. Low weight and high insulating properties are the examples of characteristics of this category of materials. However, it is their formability (being plastic) that makes them so attractive to designer and manufacturers. Various processes are utilized to manufacture the plastic parts including: extrusion, injection molding, blow molding, calendaring, compression molding. Alternative and advanced processes have been also developed to manufacture innovative products such as foam process, fluid assist injection molding, lost-core molding, to name a few. Foaming process can be performed in extrusion and injection molding to obtain low-weight final products with unique properties such as thermal insulation and impact absorption e.g. Microcellular foams

Mold and die design and manufacturing is an essential part of plastic processing. I have conducted various researches in extrusion and injection molding processes including: extrusion of plastic composites (short and long fibers), extrusion die design and manufacturing with main focus on balancing, injection molding of plastic foams and composites, shrinkage study in injected molded parts. A very recent project I have been working on was to implement the process of continuous (glass and knauf) fiber reinforced thermoplastics which is a very attractive subject for industries.

Additive Manufacturing: Additive manufacturing refers to those processes where an object is built layer by layer. There are different techniques to implement this concept. Sterolithography (SLA) is the earliest processes where the part is made via hardening a special liquid by laser beam as it sweeps the selected path. Selected Laser Sintering (SLS) refers to the process where powders of metals or plastics are used. The latest method of additive manufacturing, although less sophisticated, is Fused Deposition Modeling (FDM) where the molten plastic is deposited layer by layer through an extruding nozzle. FDM has become highly popular due to its lower cost and availability. However the limit is the inherent weakness in the produced parts. It is also limited to viscoelastic materials namely plastics and their composites: ability to melt and flow. I have recently initiated intensive research works in my group at TMU to develop FDM process to produce high performance materials, for instance, utilizing continuous fibers (glass, Kevlar, carbon). Besides, special effort is undergoing to extend the material limit to non-polymeric materials in FDM process, to introduce a low cost process.

Advanced and Green Materials: Global awareness towards preserving the environment and reducing consumption of fossil resources have expedited research works towards development and processing of the (biodegradable) green materials. My main interest is in properties development, production, die design in order to achieve higher performances for particle filled thermoplastics (e.g. Wood Plastic Composites) and especially on biodegradable matrices (e.g. starch based plastics). Extrusion process and injection molding are the principal methods utilized for production of these materials. Due to their properties, they demand new modifications and approaches in processing. The new development is to incorporate additional reinforcing component (long fibers such as glass and Kenaf) in order to enhance final mechanical properties in order to make them suitable for load bearing application (their current point of weakness)

Visualization and Analysis of Polymeric Melt Flow: Visualization is an effective technique in understanding physical phenomena. In particular, visualizing polymer processes is a highly interesting research topic which enhances our knowledge of polymer processes. My main interest is injection molding process where a special mold was designed to provide a window to visual a high speed process of melt flow during mold filling. Mold filling process, orientation (such as fibers), foaming process (cell nucleation and growth) can be analyzed via this technique. A high speed camera equipped with appropriate data collection hardware and software is required for this research work. Also, another area of research work is visualizing the fracture mechanism in composites (specifically on wood plastic composites).

Modeling and Simulation (of Plastic Materials and process): Simulation of shrinkage in injection molded parts and failure analysis in particle reinforced plastics are of those topics which I have worked and am interested to conduct researches. While experimental works have their high merits and advantages, it is also necessary to understand the fundamental via simulation and modeling.

Smart Materials: I have been teaching courses in Shape Memory Alloys and have been involved in characterization and application of these materials. The recent investigation I have also conducted is manufacture of shape memory plastics using blend of polyurethane and PLA (polylactide: biodegradable plastics) for medical application. Appropriate blending ratio and process, shaping and training are the principal steps in their producing.

GRANT AWARDED RESEARCH PROJECTS (PRINCIPLE APPLICANT AND INVESTIGATOR)

Design and Modification of An Extrusion System for Production of Fine-Cell High Expansion PE Foams	Iranian National Science Foundation, Tehran	2015
Analysis of Materials and Production of Pole Circuit Breaker System (Metro)	Metro (Tehran Transportation Co.), Tehran – in Cooperation with Sharif University of Technology, Tehran	2013
An Innovative Method of Manufacturing Injected Molded Wax Models for Gas Turbine Blade	Management of Power Plant Projects Co. (MAPNA), Iran	2011-2012
Microcellular Foam Extrusion Coating of Communication Cables	Ministry of Industries and Mines and Sabba Engineering Co., Iran	2006-2008
Design, Analysis and Manufacture of a Plastic Battery Tray for Auto Peugeot in Substitution for Metallic Tray	Iran Khodro Co. (Automotive Industry), Iran	2007-2009
Design, Optimization and Manufacture of Wood- Plastic Composite Pallets	Research Support Award, Office of Research Affairs, Tarbiat Modares University, Iran	2005-2007
Implementation of a Fluid Assisted Injection Molding System to produce Industrial Parts	Ministry of Industries and Mines, Iran	2004-2006
Design and Manufacture and Implementation of Microcellular Foam Injection System	Industries Development and Renovation Organization (IDRO), Iran	2003-2005
Design and Manufacture and Implementation of Twin Extruder for Wood-Fiber/Polypropylene	Research Support Award, Office of Research Affairs, Tarbiat Modares University, Iran	2002

Products

Design, Analysis and Manufacture of Polyurethane Sandwich Panels with Plastic and Aluminum Skins

Saaye Saz Imen CO., Iran

1999

GRADUATE TEACHING COURSES

Advanced Plastic Processing

**Additive Manufacturing
(3D Printing)**

Composite Materials (I and II)

Advanced Engineering Mathematics

Smart Materials

Shape Memory Alloys (SMA):

GRADUATE STUDENTS: PRINCIPLE SUPERVISOR

- Rezai, M. Additive Manufacturing of Metallic Products in Fused Deposition Modelling Process (3D Printing), (**PhD**, Started 2017).
- Hedayati, K. Manufacture of Resorbable Scaffold reinforced with Continuous Fibers (**PhD**, Started 2017).
- Ahmadi, S. Additive Manufacturing Assisted Tissue Engineering, (**PhD**, Started 2017).
- Bagheri, A. Simultaneous Manufacture of Soft and Hard Tissues using Additive manufacturing Process: DLP process, (**PhD**, Started 2014).
- Nabipour, M. Additive Manufacture of composite parts in FDM process, (2014-2016).
- Akhundi, B. Additive Manufacturing: 3-D printing of Continuous Fiber Plastic Parts in FDM process, (**PhD**, Started 2013)
- Hamrang, Sh. Visualization of Gas Assisted Injection Molding of a Multi-cavities Mold, (**MSc.**, 2012-2014)
- Asadi, A. Extrusion of Continuous Natural Fiber Reinforced Wood Plastic Composites, (**MSc.**, 2012-2014)
- Taheri, H.: Design and Manufacture of a Modular Extrusion Die for Production of Continuous Glass Fiber Reinforced Wood Plastic Composites, (**MSc.**, 2009-2011)
- Kargar, M.: Extrusion Foaming of Continuous Fiber Reinforced Wood Plastic Composites, (**MSc.**, 2009-2011)
- Sedghi, V.: Experimental Study on the effect of Pre-Tension on Mechanical Strength of continuous glass Fiber Reinforced WPC in Injection Molding Process, , (**MSc.**, 2011-2014)
- Amiri, M.: Study of Fracture Behavior in Wood Plastic Composites using CDM, (**PhD**, Started 2011)
- Barmuz, M.: Manufacture and Characterization of Smart Polymers, (**PhD**, Started 2012)
- Ahmadzai, A., Experimental and Theoretical Study on Expansion Behavior of Injection Foamed Parts, (**PhD**, 2008-2014)
- Shahi, P.: Effect of Blending on the Production of Polyethylene Foams, (**PhD**, Started 2010)

- Zolfaghari, A. Experimental and Theoretical Study on production of Hybrid Long Fiber Reinforced WPC in Extrusion Process, (**PhD**, 2008-2013).
- Alavi, F.: Micromechanical Behavior of Failure in Particle reinforced Plastic Composites, (**PhD**, 2008-2013)
- Ahmadi, M. Gas Assisted Injection Molding of Wood Plastic Composites, (**MSc**, 2009-2012)
- Adli, A. Micromechanics Modeling of Yonge's Modulus and Strength of Wood Plastic Composites, (**MSc**, 2009-2012)
- TabkhPaz, M. Effect of Melt Flow Index of Polymeric Matrix on the Recycleability of Extruded Wood Plastic Composites, (**MSc**, 2008-2012)
- Abdollahi, A. Experimental Study of process-ability of the Injection molded Rubber-Reinforced Plastic Composites, (**MSc.**, 2008-2012)
- Daryabari, Y. Injection Foam processing of Wood-Plastic Composites, (**MSc.**, 2008-2012)
- Soury, E.; Experimental and Theoretical Study on Flow instability in Extrusion of WPC products, (**PhD**, 2007-2012)
- Nazari, M.; Foam Extrusion Coating of Communication Cables, (**PhD**, 2006-2010)
- Shakoori, E.,; Theoretical Investigation on Die pressure prediction and Effect of Die Pressure on Mechanical Properties of Extruded Wood-Plastic Composites, (**MSc.**, 2007-2009)
- Shahi, P.: Effect of Process Design on Mechanical Properties of Extruded Wood- Plastic Composite Products, (**MSc.**, 2007-2010)
- Haghshenas, M., Foam Extrusion of Wood-Plastic Composites to Optimize Weight and Cost, (**MSc.**, 2007-2010)
- Mahmoodi, M.; Visualization and Theoretical analysis of Bubble Dynamics in Filling Stage of Injection Foaming Process, (**MSc.**, 2006-2008)
- Zolfaghari, A.; Experimental and Theoretical Study on Die Balancing in Extrusion of WPC Profiles (**MSc.**, 2006-2008, Continued to PhD)
- Soury, E.; Design, Optimization and Manufacture of Wood- Plastic Composite Pallets (MSc, 2005-2007), continued to PhD)
- Ahmadzai, A.; Study on Effect of Processing Parameters on Shaping of Water Assisted Injection Molded Parts -(MSc, 2005-2007, continued to PhD)
- Rezavand, S.A.M.; Experimental Study on Microcellular Foams in Injection Molding Process, (**PhD**, 2004-2010).
- Azdest, T.; Numerical Simulation of Constraint Shrinkage in Injection Molding Parts, (**PhD**, 2001-2006).
- Jafarian, N.; Injection molding of fine-wood plastic composites, (**MSc.**, 2004-2006)
- Fathi, S.; Visualization of the Melt Flow in the Plastic Injection Molding Process using Direct Observation Method, (**MSc.**, 2004-2006)
- Ravan, A.; Implementation of a Water Assisted Injection Molding System, (**MSc.**, 2003-2005)
- Rajabpoor, M.; Design, Manufacture and Implementation of A Microcellular Foam Injection Molding System, (**MSc.**, 2003-2005).
- Safarian, A.; Experimental Study on Metal Injection Molding Process, (**MSc.**, 2003-2005).
- Motabar, H.; Experimental Study on Shrinkage of Injected Molded Parts, (**MSc.**, 2002-2004)
- Khamedi, R.; Design and Manufacture of Calibration Unit for WPC Profile, (**MSc.** 2002-2004).
- Kazemi, K.; Mechanical and Microstructural Properties of Microcellular Foams: ABS and its Composites, (**MSc.**, 2002-2004).
- Rezavand, S.A.M.; Investigating Effective Processing Parameters on Dimensional Stability of Injected Wax Patterns of Gas Turbine Blades, (**MSc.**, 2002- 2004, continued to PhD)
- Rasoolian, M.,; Optimization of Foam Structure in Injected Molded Bear-Loading Pellets, (**MSc.**, 2001, 2003)
- Bahari, B.: Design and Construction of Twin Extruder for Wood-Fiber/Polypropylene Extruded Sheet, (**MSc.**, 2001-2003).
- Farajpour, M.: Design, Manufacture, and Optimization of Extrusion Die with I-Profile, (**MSc.**, 2000-2002)
- Zohdi, A.: Effective Parameters in Injection Molding of PP/Wood-Fiber Composites, (**MSc.**, 2000-2002)
- Moallemi, M.: Warpage Analysis of Injected Molded Parts, (**MSc.**, 2000-2002)
- Habibzadeh, N.: Design and Manufacturing of Gas Nozzle in Gas Assisted Injection Moulding Process, (**MSc.**)

Alaai, F., Gas Assisted Injection Molding: design and Process, (MSc., 1999-2001)
Naazeri, H., Design of a Software Program for Geometric Tolerance in CAD Systems, (MSc., 1998,2000)
Paakdaamanian, S.: Design and Manufacture of a Semi-Continuous Casting Process for Brass Rod Production, (MSc., 1998-2000)
Akbarian Gilan, A. : Design and Manufacture of an Extrusion System for Soya Oil Extraction, (MSc., 1997,1999)

INDUSTRIAL EXPERIENCES

2001-2005 Deputy Managing Director: intensive involvement in design, manufacturing and sales for manufacturing companies, Dandeh Masooreh Co. , Tehran, Iran (Factory: Ghazvin, Iran)

2006 Senior Consultant: Wood Plastic Composite , Feasibility Study, 22 Bahman Co., Tehran Iran. (Factory: Behshahr, Golestan, Iran)

20013-2014 Deputy Managing Director: Wood Plastic Composite Manufacture, Tooska Co., Tehran, Iran (Factory: Bandar Gaz, Golestam, Iran)

PUBLICATIONS

Book Chapter:

B.1) Alavi, F., Behraves, A.H., and Mirzaei, M., "Fracture Mechanism of Wood-Plastic Composites (WPCS): Observation and Analysis," In: Lignocellulosic Polymer Composites, Kumar Takhur, V., Wiley, Scrivener, MA, pp. 385-415 (2015)

B.2) Park, C.B., Behraves, A.H., and Venter, R.D., "Chapter 8- A Strategy for Suppression of Cell Coalescence in the Extrusion of Microcellular HIPS Foams," In: *Foam Book: Recent Advances in Polymeric Foam Science and Technology*, Khemani, K., ed., ACS, Washington, pp. 115-129 (1996).

Journal Publications (as the Corresponding Author):

J.63) Barmouz, Mohsen, and Amir Hossein Behraves. " Shape memory behaviors in cylindrical shell PLA/TPU-cellulose nanofiber bio-nanocomposites: Analytical and experimental assessment." *Composites Part A: Applied Science and Manufacturing*, 101, pp. 160-172 (2017).

- J.62) Barmouz, Mohsen, and Amir Hossein Behravesh. "Statistical and experimental investigation on low density microcellular foaming of PLA-TPU/Cellulose nano-fiber bio-nanocomposites." *Polymer Testing*, **61**, pp. 300-313 (2017).
- J.61) Siah sarani, A., A. H. Behravesh, and M. Barmouz. "Compressive shape memory behavior of spring-shaped polylactic acid alloy type." *Journal of Applied Polymer Science* **134**(30), APP45115,(2017).
- J. 60) Shahi, Peyman, et al. "Morphological Analysis of Foamed HDPE/LLDPE Blends by X-ray Micro-Tomography: Effect of Blending, Mixing Intensity and Foaming Temperature." *Cellular Polymers* **36**(5), p. 221, (2017).
- J.59) P. Shahi, A.H. Behravesh, , A. Haghtalab, G. Rizvi, F. "An experimental study on foaming of linear low-density polyethylene/high-density polyethylene blends," *Journal of Cellular Plastics*, **53**(1), pp. 83-105 (2017)
- J.58) P. Shahi, A.H. Behravesh, , A. Haghtalab, G. Rizvi, R. Pop-Iliev, F. "Effect of Mixing Intensity on Foaming Behavior of LLDPE/HDPE Blends in Thermal Induced Batch Process," *Polymer Composites*, Vol. 55, 9 , pp. 949-964 (2016)
- J.57) M. Barmuz, A.H. Behravesh, F. Reshadi, N. Soltani, "Assessment of defect detection in wood-plastic composites via shearography method ,” *Journal of Thermoplastic Composite Materials*, **Vol. 29**, 1 , pp. 28-36 (2016)
- J.56) Mohammad Taheri, Hossein, Amir Hossein Behravesh, and Mahmoud Kargar. "A modular extrusion die design to produce continuous glass fibers reinforced PVC-wood composite profiles." *Polymer Composites* (2016).
- J.55) M. Kargar, A.H. Behravesh, H.M. Taheri, "Experimental investigation on mechanical properties of extruded foamed PVC-wood composites reinforced with continuous glass fibers," *Polymer Composites*, **Vol. 37**, 6 , pp. 1674-1680 (2016)
- J.54) F. Alavi, A.H. Behravesh, and M. Mirzaei, "Effect of temperature on the fracture mechanism of wood-plastic composites in situ," *Journal of Engineering, Journal of Thermoplastic Composite Materials* **Vol. 29**, 1 , pp. 3-15 (2016)
- J.53) F. Alavi, A.H. Behravesh, and M. Mirzaei, Mixed-mode cohesive zone modeling and damage prediction of irregular-shaped interfaces in wood-plastic composites, *Composite Interface*, **Vol. 22**, 7 , pp. 651-662 (2015)
- J.52) A. Zolfaghari, A. H. Behravesh, P. Shahi, "Comparison of Mechanical Properties of Wood-Plastic Composites Reinforced with Continuous and non-Continuous Glass Fibers," *Journal of Thermoplastic Composite Materials*, **Vol. 28**, 6 , pp. 791-805 (2015).
- J.51) A. Ahmadzai and A.H. Behravesh, , M. Tabkhpaz Sarabi, P. Shahi "Visualization of foaming phenomena in thermoplastic injection molding process," *Journal of Cellular Plastics*, **Vol. 50**, 3 , pp. 279-300 (2014).

- J.50) Majid Tabkhpaz Sarabi, Amir Hossein Behraves, Peyman Shahi and Yasser Daryabari, "Effect of Polymeric Matrix Melt Flow Index in Reprocessing Extruded Wood-Plastic Composites", *Journal of Thermoplastic Composite Materials*, **Vol. 27**, 7, pp. 881-894 (2014).
- J.49) A. Ahmadzai and A.H. Behraves, "Bulk Density Reduction of Injection Molded Thermoplastic Foams via a Mold Design Approach," *Cellular Polymers*, **Vol. 30**, 1 , pp. 21-42 (2014).
- J.48) A. Ahmadzai and A.H. Behraves, "A Novel Approach in Mold Design in Regards to Weight Reduction of Foam Injection Molded Parts," *Cellular Polymers*, **Vol. 5**, 32 , pp. 279-304 (2013).
- J.47) E. Soury, A.H. Behraves, N.J. Jam, A. Haghtalab, " An Experimental Investigation on Surface Quality and Water Absorption of Extruded Wood-Plastic Composite, *Journal of Thermoplastic Composite Materials*, **Vol. 26**, No. 5, pp. 680-698 (2013).
- J.46) M.T. Sarabi, A. H. Behraves, P. Shahi, A. Zolfaghari, "Procedure Effect on the Physical and Mechanical Properties of the Extruded Wood Plastic Composites", *Polymer Composites*, **Vol. 34**, Issue 8, pp. 1349-1356 (2013).
- J.45) A. Zolfaghari, A. H. Behraves, A. Adli , "Continuous Glass Fiber Reinforced Wood Plastic Composite in Extrusion Process: Mechanical Properties," *Materials and Design*, **Vol. 51**, 4 , pp. 701-708 (2013).
- J.44) F. Alavi, A.H. Behraves, and M. Mirzaei, "In-situ Observation of Fracture Mechanism of Wood-Plastic Composites in Tension," *Composite Interfaces*, **Vol. 20**, Issue 3, Special issue: Advanced Polymeric Materials, (2013).
- J.43) A. Zolfaghari, A. H. Behraves, A. Adli and M. Tabkhpaz Sarabi, "Continuous Glass Fiber Reinforced Wood Plastic Composite in Extrusion Process: Feasibility and Processing," *Journal of Reinforced Plastics and Composites*, **Vol. 32**, 1 , pp. 52-60 (2013).
- J.42) E. Soury, A.H. Behraves, G.M. Rizvi, N.J. Jam, "Rheological Investigation of Wood-Polypropylene Composites in Rotational Plate Rheometer," *Journal of Polymers and the Environment*, **Vol. 20**, 4 , pp. 998-1006 (2012).
- J.41) M. Golzar, N.J. Jam, A.H. Behraves,"Mathematical and Experimental Study on Flow of Wood Plastic Composite to Acquire its Constitutive Equation," *Journal of Reinforced Plastics and Composites*, **Vol. 31**, 11, pp. 749-75 (2012).
- J.40) P. Shahi, A.H. Behraves, S.Y. Daryabari, M. Lotfi, "Experimental Investigation on Reprocessing of Extruded Wood Flour/HDPE Composites," *Polymer Composites*, **Vol. 33**, 5 , pp. 753-763(2012)
- J.39) M.T. Sarabi, A.H. Behraves, P. Shahi, E. Soury, "Reprocessing of Extruded Wood-Plastic Composites; Mechanical Properties," *Journal of Biobased Materials and Bioenergy*, **Vol. 6**, 2, pp. 221-229 (2012)
- J.38) E. Soury, A.H. Behraves, N.J. Jam, A. Haghtalab, " An Experimental Investigation on Surface Quality Extruded Wood-Polypropylene Composite, *Advanced Materials Research*, **Vol. 428** , pp. 89-93(2012).
- J.37) A. Ahmadzai and A.H. Behraves, "Effect of Processing Parameters on Water Penetration in Water Assisted Injection Molding of ABS" *Journal of Polimery*, **Vol. 56**, 3, pp. 232-239(2011).

J.36) A Rezai, A.H. Behravesh, M. Bakhshi, “Design and Optimization of a Multiple-Thickness Profile Extrusion Die with a Cross Flow” *Journal of Polym. Eng. Sci.*, Vol. 50, 12, pp. 2417-2424 (2010).

Selected Papers in Refereed Conference Proceedings (over 50 papers):

- A.H. Behravesh, A. Ahmadzai, Visualizing Injection Foaming Phenomenon: A Novel Approach in Mold Design Considering Weight reduction, BioFoams, Toronto, August 27-29, 2013.
- Abbas Zolfaghari, Amir H. Behravesh, Alireza Adli, Majid TabkhPaz Sarabi, “Reinforcing of Wood Plastic Composites by Continuous Glass Fibers in Extrusion Process”, 4th International Conference on Advanced Materials and Systems, Bucharest, Romania, 27-29 September 2012.
- E. Soury, A.H. Behravesh, G.M. Rizvi, N.J. Jam, Rheological Investigation OF Wood Polypropylene Composite in Sliding Plate Rheometer, *19th Annual Conference of BioEnvironmental Polymer Society*, Vienna, Austria, (2011)
- M. Nazari Marvian, A.H. Behravesh and P. Shahi, Production of GOAXIAL CABLES with Extrusion Foaming using Butane as Blowing Agent, *Polymer Processing Society 27th Regional Meeting*, Kish, Iran, (2011)
- F. Alavi, A.H. Behravesh, D. Karimi, A. Milani, On the effect of unit cell parameter in predicting the elastic response of wood particulate polymer composite, *Polymer Processing Society Regional Meeting*, Kish, Iran, (2011)
- M.T. Sarabi, A.H. Behravesh, P. Shahi, A. Zolfaghari, “Investigation on Effect of Wood Content on Recycle Ability of Extruded Wood-Plastic , *Polymer Processing Society Regional Meeting*, Kish, Iran, (2011)
- P. Shahi, A.H. Behravesh, S.Y. Daryabari, M. Lotfi ,A Challenge to the Production of Wood Plastic Granules with Higher Mechanical Performance, *Polymer Processing Society, 26th Regional Meeting*, Istanbul, Turkey, (2010)
- S.M Rezavand, A.H. Behravesh, P. Shahi, Thermal Conductivity of Microcellular Thermoplastic Injection Molded Parts, *Polymer Processing Society, 26th Regional Meeting*, Istanbul, Turkey, (2010)
- Saraian, P., Golzar, M., Behravesh, A.H., “The Effect of Nanoclay on Polystyrene-Nanocomposite Rheological Properties” *7th International Conference on Composite Science and Technology*, Sharejeh, UAE (2009).
- Jafarian Jam, N., Golzar, M., Behravesh, A.H., “Flow Behavior Assess and Mathematical Approach to Acquire Constitutive Equation of Wood-Plastic, *7th International Conference on Composite Science and Technology*, Sharejeh, UAE (2009).

PATENTS AND AWARDS

- A.H. Behravesh , S.A. Rezavand, M. Mahmoodi, M. Nazarian, Tarbiat Modares University (TMU),”Design and Manufacture of a Gas Injection System, Nozzle, and Control Circuit to Implement on a Conventional injection Molding Machine to Produce Three-Layers Structural Foams,” (2009).
- A.H. Behravesh , M. Nazarian, “Design and Manufacture of a Microcellular foam Extrusion System, (2009). **Elected as one of the bests of the** National Festival of Innovation and Development.
- A.H. Behravesh, A. Haghshenas, ” Design and Manufacture of an Extrusion System to Produce WPC foams,” (2010).
- A.H. Behravesh , S.Y. Daryabari,”Microcellular Foams of WPC using a Two-Stage Mixing Process” (2011). **Elected as one of the bests of the** Regional Festival of Innovation and Development (Alborz).

- A.H. Behraves, F. Alavi, D. Karimi”Manufacture of a Portable Micromechanical Tensile Test equipped with Image Processing” (2011).
- A.H. Behraves (2013), “Production of Hollow Wax Models for Investment Casting,” **International Khwarizmi Awards, Third Laureate in Research and Development (The most prestigious scientific award, internationally held in Iran, sponsored by Ministry of Science, Research and Technology)**
- A.H. Behraves, A. Zolfaghari,” Continuous Fiber Reinforced Wood Plastic Composites in Extrusion” (2014)

*All national patent

PROFESSIONAL ASSOCIATION, ACTIVITIES, AND SERVICES

Associations:

Society of Plastic Engineer (SPE)	Member
Iran Polymer Society	Member
Iran Society of Manufacturing Engineering (ISME)	Founder, Member
Non Destructive Testing Association	Founder, Member

Committees:

First International Conference of Manufacturing and Production Engineering of Iran, Tehran, 2005	Manager of Scientific Committee
12 th International Mechanical Engineering Conference, Tehran, Iran, 2004.	Manager of Equipment and Supplies Committee

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