



Research Institute of Food
Science & Technology

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Education

- Ph.D. Mechanical Engineering, Ferdowsi University of Mashhad, Iran, 2009
- M.SC. Mechanical Engineering, Tarbiat Modares University, Tehran, Iran, 1995
- B.S. Mechanical Engineering, Ferdowsi University of Mashhad, Iran, 1991

Employment

- Assistant Professor, Research Institute of Food Science & Technology, Mashhad, Iran

Research Interests

- Structural Modeling and Analysis
- Analytical and Experimental Analysis of the High Pressure Vessels
- Finite Element Analysis
- Delamination of Composite Laminates
- Functionally Graded Composite Materials
- Coupled Electro-mechanical Analyses of Piezoelectric Composite Materials
- Renewable Energy

- Design and manufacture of mechanized saffron weighing machine (first phase)
- Design and manufacture of mechanized slaughtering machine
- The design of machinery and the process of packaging barberry
- Design and manufacture of tension testing device for control cables
- National technology plan for the construction of high pressure composite vessel (CNG 4)
- Design and manufacture of paper pot production machine
- Theoretical and experimental analysis of the vibration of the odometer cable
- Design and manufacture of digital torque meter
- Design and manufacture of 1000 cc serum mold
- Improving the shock resistance of ceramics
- Design and manufacture of aluminum jars
- Design and manufacture of semi-automatic fodder shredding machine
- Laboratory investigation of barberry harvester
- Investigating the increase in wear resistance of ceramics
- Design and manufacture of rotary pump
- Design and manufacture of carcass cutting saw
- Semi-industrial design of mechanized cow slaughtering machine
- Semi-industrial design of aluminizing exhaust parts
- Nonlinear analysis of FGM beams under mechanical and thermal loading using Layerwise and Perturbation theory
- Investigating the production methods of FGM materials and feasibility of its production in Iran
- Design and manufacture of high pressure hydrostatic press (6000 bar) using non-thermal food processes
- Design and manufacture of micronized roller mill
- Design and manufacture of travel solar cooker
- Compilation of the road map of the center of food industry in Razavi science and technology corridor
- Designing a conceptual model and investigating the feasibility of the chain of production to consumption of Tayyab bread
- Designing and making a home-made flat bread baking machine with power control
- Evaluation of extraction of pectin from apple pomace using pulsed electric field and microwave and investigation of its functional and rheological properties
- Design and construction of energy storage system for indirect solar oven and analysis of its performance
- Dimensional and experimental analysis of the effect of high hydrostatic pressure on the structural, functional and rheological characteristics of millet starch
- Design and manufacture of sourdough fermenter

- Parametric analysis and optimization of a portable evacuated tube solar cooker, M Hosseinzadeh, A Faezian, **S.M Mirzababae**, H Zamani, *Energy* 194, 116816, (2020).
- Non-linear analysis of functionally graded plates in cylindrical bending under thermomechanical loadings based on a layerwise theory, M Tahani, **S.M Mirzababae**, *European Journal of Mechanics-A/Solids* 28 (2), 248-256, (2009).
- The performance improvement of an indirect solar cooker using multi-walled carbon nanotube-oil nanofluid: An experimental study with thermodynamic analysis, M Hosseinzadeh, R Sadeghirad, H Zamani, A Kianifar, **S.M Mirzababae**, *Renewable Energy* 165, 14-24, (2021).
- Accurate determination of coupling effects on free edge interlaminar stresses in piezoelectric laminated plates, M Tahani, **S.M Mirzababae**, *Materials & Design*, (2009).
- Experimental study of a nanofluid-based indirect solar cooker: energy and exergy analyses, M Hosseinzadeh, R Sadeghirad, H Zamani, A Kianifar, **S.M Mirzababae**, *Solar Energy Materials and Solar Cells* 221, 110879, (2021).
- Higher-order coupled and uncoupled analyses of free edge effect in piezoelectric laminates under mechanical loadings, M Tahani, **S.M Mirzababae**, *Materials & Design* 30 (7), 2473-2482, (2009).
- Effects of high hydrostatic pressure on the rheological properties and foams/emulsions stability of *Alyssum homolocarpum* seed gum, S Ghaderi, MA Hesarinejad, E Shekarforoush, **S.M Mirzababae**, *Food Science & Nutrition* 8 (10), 5571-5579, (2020).
- Modeling of an evacuated tube solar cooker and investigation of weather parameters effect M Hosseinzadeh, **S.M Mirzababae**, H Zamani, A Faezian, F Zarrinkalam, *Modares Mechanical Engineering* 19 (7), 1573-1584, (2019).
- A new approach for the analysis of functionally graded beams, **S.M Mirzababae**, M Tahani, SM Zebarjad, *Journal of Achievements in Materials and Manufacturing Engineering* 17 (1-2), 266-268, (2006).
- A study on the structural, physicochemical, rheological and thermal properties of high hydrostatic pressurized pearl millet starch, **S.M Mirzababae**, D Ozmen, MA Hesarinejad, OS Toker, S Yeganehzad, *International Journal of Biological Macromolecules* 223, 511-523, (2022).
- Experimental Investigation of the Effect of Wind Speed on the Performance of a Portable Parabolic Solar Cooker from Energy and Exergy Viewpoints, M Hosseinzadeh, H Zamani, **S.M Mirzababae**, A Faezian, F Zarrinkalam, *Modares Mechanical Engineering* 20 (6), 1525-1532, (2020).
- Analytical Solution of Electromechanical Coupling Effect on Interlaminar Stresses at Free-Edges of Angle-ply Piezoelectric Laminates under Mechanical Loading, M Tahani, **S.M Mirzababae**, *journal of applied and computational sciences in mechanics* 21, 89-108, (2011).
- Experimental and Numerical Analysis of Energy Absorption of Hollow and Foam filled thick-wall Aluminum Tubes Considering Different Damage Models, V Hoseini, M Shariati, **S.M Mirzababae**, M Mahdizadeh Rokhi, *Journal of Mechanical Engineering* 51 (4), 95-104, (2022).
- An Experimental Study on the Effect of Thermal Shield on Energy Saving in Cooking Pot, H Zamani, **S.M Mirzababae**, SM Hashemian, *Research and Innovation in Food Science*

and Technology 7 (4), 353-364, (2019).

- Experimental Study of the Effect of Sun Tracking on the Performance of an Evacuated Tube Solar Cooker, HZ M. Hosseinzadeh, **S.M Mirzababae**, Journal of Mechanical Engineering, 52 (2), 281-288, (2022).
- Dimensional and experimental analysis of high hydrostatic pressure process Case study: Application of dimensionless numbers in millet starch rheological test, MA Hesarinejad, **S.M Mirzababae**, OS TOKER, S Yeganehzad, Research and Innovation in Food Science and Technology, (2022).
- Comparison of physicochemical properties of pectin Extracted from apple pomace by microwave and high temperature acid treatment: optimization by surface–Response H Jamshidian, A Rafe, **S.M Mirzababae**, Journal of food science and technology (Iran) 19 (122), 129-141, (2022).
- Thermodynamic Analysis of an Evacuated Tube Solar Cooker under Different Operating Conditions, HZ M. Hosseinzadeh, **S.M Mirzababae**, journal of solid and fluid mechanics 5 (11), 259-268, (2021).
- Effect of different parameters on the design of baking bread on the quality and textural properties of flat bread, **S.M Mirzababae**, A Rafe, H Zamani, Journal of food science and technology (Iran) 18 (118), 223-235, (2021).
- Optimization of pectin extract from pomace waste using response-surface methodology H Jamshidian, A Rafe, **S.M Mirzababae**, Journal of food science and technology (Iran) 18 (117), 207-216, (2021).

Conferences / Workshops

- Tayyab food production using high hydrostatic pressure technology, **S.M Mirzababae**, A Dara, Tayyab International Food Conference, (2022).
- Investigating the effect of myrtle seed gum on the physicochemical, rheological and sensory properties of buttermilk, **S.M Mirzababae**, A Moderi, M Mokhtari, S Karimi, A Dara, The 28th National Congress of Food Sciences and Industries of Iran, (2021).
- Analytical Solution for Nonlinear Bending of FGM Plates by a Layerwise Theory, M. Tahani, **S.M Mirzababae**, 16th International Conference on Composite Materials (ICCM16) Kyoto, Japan, (2007).
- Optimization of composite pressure vessels, **S.M Mirzababae**, J Ismaili, 12th Annual International Conference on Mechanical Engineering, (2004).
- Stress analysis of multi-layer composite pressure vessels using exact elasticity solution, **S.M Mirzababae**, J Ismaili, 11th Annual International Conference on Mechanical Engineering, (2003).

- Application of high pressure composite vessels (CNG 4), **S.M Mrizababae**, The first natural gas application conference, (2003).
- Design and elastic testing of CNG high pressure vessels, **S.M Mrizababae**, G Rahimi, 5th Annual International Conference on Mechanical Engineering, (1997).
- Methods of measuring residual stresses, **S.M Mrizababae**, Journal of Mechanical Engineering Toos, (1997).
- Methods of experimental measurement of Poisson's ratio, **S.M Mrizababae**, Journal of Mechanical Engineering Toos, (1997).

Encouragement and Awards

- The third place of innovation , The 13th International Khwarazmi Festival , Awarded by the President, (1999).
- Exemplary faculty, Iranian Research Organization for Science and Technology, Awarded by the Head of the organization, (2000).

Patent

- Design and manufacture of mechanized cow slaughtering machine, Patent No: 45473, 2007.
- Designing and manufacturing steering wheel testing machine, Patent No: 47569, 2008.
- Chamber under vacuum for baking bread with a parabolic solar oven, Patent No: 95742, 2017.
- A mechanism to replace the fixed seal instead of the rotating seal in the rotating cylinder (roller) and create a thin layer in the working fluid, Patent No: 97632, 2018.
- Cooling device for all kinds of machine and industrial breads, Patent No: 95377, 2018.
- Basket for carrying bread, Patent No: 95427, 2018.
- Fully mechanical two-axis solar tracker for all types of solar collectors, Patent No: 98955, 2019.

- Application of FEM in engineering, UNESCO - Ferdowsi University ,(1989).
- Design of multilayer pressure vessel, UNESCO - Tarbiat Modares University,(1993).
- Workshop of technology management, Iranian Research Organization for Science and Technology,(1997).
- Workshop of Information networks , Iranian Research Organization for Science and Technology,(1997).
- Workshop of Technology management - time management, Iranian Research Organization for Science and Technology, (1999).
- Web Design, Iranian Research Organization for Science and Technology, (2000).
- ISO 9000-2000 standard, Iranian Research Organization for Science and Technology, (2000).
- Workshop of Technology management, Iranian Research Organization for Science and Technology, (2000).
- Workshop of Basics of management and strategic planning, Iranian Research Organization for Science and Technology, (2001).
- Workshop of Intellectual property and patents, Khorasan Science and Technology prak, (2004).
- Workshop of Rapid prototyping workshop, Khorasan Science and Technology prak, (2005).
- Workshop of Regional knowledge base development and technology commercialization, Isfahan Science and Technology Town, (2010).
- Workshop of Development of regional knowledge base and global experiences in the field of technology creation, Isfahan Science and Technology Town, (2010).
- Workshop of Professional patent search strategies and patent process abroad, Waipo - Khorasan Science and Technology Park, (2011).
- Workshop of The role of science and technology parks in the development of knowledge-based economy, COMSTECH- Ministry of science research & technology,(2013).