CURRICULUM VITAE AI FINI DELLA PUBBLICAZIONE
Razieh Izadi

Education

PHD:

Mechanical Engineering, Solid Mechanics, Sept. 2013- Feb. 2019
Shiraz University, Shiraz, Iran
GPA: 18.3/20
Thesis Topic: Mechanical Modeling and Analysis of Fullerene Molecules and Fullerene Reinforced Composites

- The elastic properties of fullerene reinforced polymer nanocomposite are determined via molecular dynamics simulation
- The interphase and interface regions are distinguished around fullerene molecules and a novel method is proposed to calculate the elastic modulus of the interface as well as interphase region
- A micromechanics model is developed for a non-dilute composite with multi-layer inclusions based on generalized Eshelby results with the assumptions of Mori and Tanaka approach.
- structural instability of fullerene family under tension force is studied
- effective Young's modulus values of fullerene molecules are investigated with a combined molecular dynamics simulation and continuum shell model

Thesis Grade: 19.7/20
Under Supervisions of: Dr. Ali Nayebi and Dr. Esmaeel Ghavanloo

Master of Science:

Mechanical Engineering, Applied Design, Sept. 2011 – Sept. 2013
Shiraz University, Shiraz, Iran
GPA: 17.96/20
Thesis Topic: Identification of Material Parameters of Three Dimensional Orthotropic and Monoclinic Materials

- An inverse method is developed for determination of elastic constants of three-dimensional orthotropic, monoclinic and anisotropic materials. The strain measurements at some sampling points obtained from several elastostatic experiments are considered as the elastic response of the material. The finite element method is used for sensitivity analysis.

Thesis Grade: 19.7/20
Under Supervision of: Dr. Mohammad Rahim Hematiyan

Bachelor of Science:

Mechanical Engineering, Applied Design, Sept. 2007 – Sept. 2011
Shiraz University, Shiraz, Iran
GPA: 17.11/20
Thesis Topic: Optimization of Several Mechanical Problems by means of Programming in ANSYS APDL
Thesis Grade: 19.75/20
Under Supervision of: Dr. Mohammad Rahim Hematiyan

Selected Courses

- Finite Element Method: 19/20 (1st grade)
- Composite Materials: 18/20 (1st grade)
- Energy Methods: 18/20 (1st grade)
- Continuum Mechanics: 18/20 (1st grade in midterm, 2nd grade in final)
- Computer programming: 20/20

Awards and Honors

- Ranked 7th among more than 1000 participant in Iranian university entrance exam for PHD degree in solid mechanics of mechanical engineering, Iran
- Ranked 3rd between 29 students of solid mechanics in the Master's program, Shiraz, Iran
- Ranked as the 5th top student between 50 students of applied mechanics at the end of Bachelor's, Shiraz, Iran
- Entered the Master's without entrance exam considered for graduating top students in the Bachelor program.
- Ranked within the top 0.3 % among approximately 312,000 participants in the National Entrance Examination for Iranian universities, Iran
- Accepted to take part in "Mathematics Olympiad Stage 2" from top 5% of participants in " Mathematics Olympiad Stage 1" for in all three years of high school, Iran
- Accepted to take part in "Literature Olympiad Stage 2" from top 5% of participants in "Literature Olympiad Stage 1", Iran

Research Interests

- Micromechanics and Multi-scale Modeling
- Material characterization
- Composite and Nanocomposite Structures
- Nanomechanics
- Molecular Dynamics Simulations
- Inverse Analysis
- Shell and Plate Theory
- Finite Element Method

Publications

- Journal Publications:

1. Izadi, R., Ghavanloo, E., Nayebi ,A., 2019. **Elastic properties of polymer composites reinforced with C60 fullerene and carbon onion: Molecular dynamics simulation.** Physica B: Condensed Matter , 574, 311636 (Published).
2. Izadi, R., Nayebi ,A., Ghavanloo, E., 2018. **Molecular dynamics simulations of structural instability of fullerene family under tension force.** Molecular Simulation 44, 1338-1343 (Published)

3. Ghavanloo, E., Izadi, R., Nayebi, A., 2018. **Computational modeling of the effective Young's modulus values of fullerene molecules: a combined molecular dynamics simulation and continuum shell model.** Journal of molecular modeling 24, 71 (Published)
4. Izadi, R., Hematiyan, M. R., 2015. **An inverse method for determination of elastic constants of three-dimensional orthotropic, monoclinic and anisotropic materials**, Modares Mechanical Engineering 15, 367-376, 2015 (Published In Persian)
5. Izadi, R., Nayebi ,A., Ghavanloo, E., 2020. **A combined molecular dynamics–micromechanics method to predict elastic properties of fullerene-reinforced polymer composites,** Composite Part B (In preparation)

- Conference Paper:
  Izadi, R., Nayebi ,A., Ghavanloo, E., 2019. **Determination of C60 Young's modulus by molecular dynamics simulations combined with inverse analysis**, 27th Annual International Conference of Iranian Society of Mechanical Engineering, ISME 2019.

Experiences

Teaching Experience:

- Adjunct lecturer for three academic semesters;

- Course: Mechanics of Materials, Statics, Dynamics
  Shiraz, Iran, 2013-2014
- Heat Transfer I, Fundamentals of Thermodynamics, Thermodynamics Lab.
  Shiraz, Iran, 2012-2013

Professional Experience:

- Head of project team in R&D Department, Nirou Trans Company (NTC), 2016 to present

Conducting several industrial projects as the head of the team. The team members are skillful electrical and mechanical engineers.

- Supervisor of R&D Mechanical Laboratory, NTC, 2015 to present

All the mechanical type tests on newly-designed products are performed in R&D Lab. The Lab. is internationally accredited (possessing ISO17025). The equipment required for the tests are mainly designed by R&D experts.

- R&D mechanical expert, NTC, 2014 to present
- mechanical analyst (mainly in ANSYS)
- Performing mechanical design
- Contribution in edition of mechanical aspects of IEC standards (IEC 61869-1, IEC/IEEE 63253-5713-8)
- The interviewer for new mechanical experts

Note: Nirou Trans Company (NTC) is the reputable manufacturer of instrument voltage and current transformers up to 550 kV and bushings up to 420kV, located in shiraz, Iran

Projects

Industrial Projects:

As an R&D expert, I have been managed and contributed to numerous industrial projects; the main ones are listed below:

- Project manager of "Design and Production of Bushing 245 kV with Silicone Rubber Insulator", 2018

This product has been produced in Iran for the first time. The product got his type test certificate from an accredited international laboratory in Croatia where I was on the mission as the test supervisor.

- Mechanical analyst and designer in "Standard CVT kV245 and 420kV with Composite Insulator" project, 2017

This project was collaborated with University of Tehran.

- Mechanical analyst and designer in "Combined Instrument Transformer 36 kV" project, 2016
- Mechanical design of special mold for resin-made current transformer, 2015

Academic projects:

- Dynamic Analysis of a triangular plate with a hole in the middle and supported by a beam using FEM programming in MATLAB, 2013 (FEM course),
- Plastic analysis of a thin-walled cylinder under combined internal pressure and torsional load with different load histories , 2013 (plasticity theory course),
- Optimization of a rectangular plate with two holes under buckling load using ANSYS APDL, 2011
- Designing, building and simulating a fruit slicer parallel motion mechanism, 2011 (design of machinery course)

Skills

Applied software:

- MATLAB
- ANSYS (programming in APDL, linking APDL and MATLAB, Workbench)
- LAMMPS (molecular dynamics simulation)
- Materials Studio (molecular dynamics simulation)
- Solidworks
- AutoCAD
- Microsoft Office (Word, Excel, Power Point, Visio)

Language Skill:

- English (Fluent)
- Farsi (Mother Language)
- Arabic (Elementary)

- Design and supervision of electrical and mechanical building installations

Seminars and Workshops

- 2 day workshop on molecular dynamics simulation (LAMMPS), Nov. 2014, Tehran, Iran
- 75-hour workshop on design and supervision of electrical and mechanical building installations, 2019-2020, Shiraz, Iran
- 12-hour workshop on introduction to laboratory quality management system requirements based on ISO 17025, July 2017, Shiraz, Iran

- 6-hour workshop on introduction to internal audit of laboratory quality management system based on ISO 17025, Feb. 2018, Shiraz, Iran
- 6-hour workshop on quality assurance of test results, Sept. 2017, Shiraz, Iran
- 8-hour workshop on introduction to uncertainty calculation, Jan. 2018, Shiraz, Iran
- 8-hour workshop on fundamentals of strategic programming, June 2017, Shiraz, Iran
- 16-hour workshop on "5S", March 2017, Shiraz, Iran
- 8-hour workshop general safety training course, Dec. 2018, Shiraz, Iran

Membership

- Member of Fars Construction Engineering Organization, 2020
- Member of Iranian National Electrotechnical Committee (INEC), 2017 to present
- Member of Scientific Association of Mechanical Department, 2009

Hobbies and Interests

Leatherwork, Sketching and painting, Swimming, Traveling

References

- Dr. Ali Nayebi, Professor, Department of Mechanical Engineering, Shiraz University, Shiraz, Iran. Email: nayebi@shirazu.ac.ir
- Dr. Esmaeel Ghavanloo, Associate Professor, Department of Mechanical Engineering, Shiraz University, Shiraz, Iran. Email: ghavanloo@shirazu.ac.ir
- Dr. Mohammad Rahim Hematiyan, Professor, Department of Mechanical Engineering, Shiraz University, Shiraz, Iran. Email: mhemat@shirazu.ac.ir

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17/08/2020