

## Personal details and date of CV

Nafar Dastgerdi, Jairan

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## Degrees

**12/2012-09/2016.** Ph.D. Degree in Mechanics of Material, Aalto University, Finland

Graduate Date: 28.09.2016, GPA: 4.5/5 (with distinction)

Title: *“Mechanical modelling of particulate reinforced metal matrix composites”*

**09/2010-03/2014.** Ph.D. Degree in Applied Mechanics, Isfahan University of Technology, Iran

Graduate Date: 12.03.2014, GPA: 17.85/20 (with distinction)

Title: *“The effects of nanotube waviness, agglomeration, and debonding on mechanical properties of polymer nanocomposites”*

## Current employment

**10/2019-up to now.** Assistant Professor, Amirkabir University of Technology (Tehran Polytechnic), Tehran, Iran.

**03/2021-up to now.** Manager of the transmission electron microscopy lab of the Central Lab of AUT.

**08-09/2021.** Visiting Professor, Aalto University, Espoo, Finland.

**08-12/2020.** Visiting Professor, Aalto University, Espoo, Finland.

## Previous work experience

**10/2016-09/2019.** Post-doctoral researcher in Mechanical Engineering Department at Aalto University, Finland.

**01/2013-09/2016.** Doctoral candidate in the Department of Mechanical Engineering at Aalto University, Finland.

**03-09/2015.** Visiting researcher in the Department of Mechanical Engineering at National University of Singapore (NUS), Singapore.

**06-12/2012.** Postgraduate researcher in the Department of Mechanical Engineering at Aalto University.

**09/2010- 05/2012.** Postgraduate researcher in the Department of Mechanical Engineering at Isfahan University of Technology, Isfahan, Iran.

**01-05/2011.** Industrial project researcher in Esfahan Steel Company (ESCo), Isfahan, Iran. Research project: Thermo-mechanical stress analysis of steel maker mixer with new refractory conditions implemented by the VESUVIUS Company.

**05-07/2007.** 300 hours experimental work experience at Sahand Company (manufacturer of most kinds of gearboxes) as a technical apprentice, Isfahan, Iran.

## Research supervision and leadership experience

**11/2019 up to now.** Co-supervisor of two PhD students at AUT (Tehran Polytechnic), Tehran, Iran.

**09/2020 up to now.** Supervisor of two master students at AUT (Tehran Polytechnic), Tehran, Iran.

**04/2018- 07/2020.** Advisor of a master thesis at AUT (Tehran Polytechnic), Tehran, Iran.

**04/2019- 12/2019.** Advisor of a master thesis at Aalto University, Finland.

### Teaching merits

**01/2021-06/2021.** Revising and preparing the new postgraduate curriculum in Aerospace Engineering (within a workgroup), Funded by Higher Education Planning Council of the Iran Ministry of Science, Research and Technology, Tehran, Iran.

**10/2019-06/2021.** Lecture of the courses *Continuum Damage Mechanics, Fatigue of Structures, Finite Element Method, Structural Analysis* at AUT (Tehran Polytechnic), Tehran, Iran.

**10-12/2017&2018.** Lecture of the course *Fatigue of Structures*, Aalto University, Finland.

**2011-2012.** Lecturer of the courses *Metal Forming, Component Design I* in the Islamic Azad University, Isfahan, Iran.

**2010-2011.** Lecturer of developing scientific seminar on *Applications of Nanotechnology in Science and Engineering* in different universities of Iran by Iranian nanotechnology initiative council, Tehran, Iran. (More than 10 seminars)

**01-05/2009.** Teaching Assistant of *Linear Control and Vibration* at the School of Engineering, University of Kashan, Iran.

**2008-2009.** Instructor the courses of *Continuum Mechanics, Advanced Mathematic, and Advanced Numerical Computations* for Shahed and Isargar (devotees) students in reinforcing courses sessions, University of Kashan, Iran.

### Awards and honours

**2020.** Financial Awarded form the Elite Foundation of Iran for young assistant professors to establish their research group, Iran.

**2017.** Financial Awarded form the Elite Foundation of Iran for the excellence of studies, Iran.

**2016.** Scholarship award from Aalto University for a doctoral degree completion less than eight full semesters, Finland.

**2015.** Scholarship award from the Ministry of Education of Finland for 6 month visiting internship at NUS, Finland.

**2013.** Scholarship award for doctoral studies (3years) by the Ministry of Education of Finland through the National Graduate Program of Engineering Mechanics, Finland

**2010. **First ranked student in M.Sc.**** with the highest GPA in School of Engineering at Kashan University, Iran.

**2008.** Ranked in the top 10 percent students as an **Exceptional talent** among graduated students at Kashan University. Admitted in the master's program of Mechanical Engineering by the Council of Exceptional Talent without any academic entrance exam, Iran.

### Other academic merits

1. Pre-examiner of two doctoral proposals and opponent of two master thesis.
2. Referee in some journals such as Computational Material Science, Composites Science and Technology and Engineering fracture mechanics.
3. Invited keynote lecturer for scientific speech at AUT, Iran.  
Part I: Microstructural effects on mechanical properties of particulate reinforced composites, January 2018. Part II: 3D X-ray tomography as a non-destructive method to characterize microstructure of material, May 2018.

### Other merits

**2020 up to now.** Member of Iranian welding and joining institute, Iran.

**2019 up to now.** Member of the Iranian Aerospace society, Iran

**2017 up to now.** Member of the Iranian National Elites Foundation, Iran.

**2012.** Third place in the Athletic Championships (shot put) Iranian students, Iran.

## List of publications

### Journal Papers:

1. J. Nafar Dastgerdi, Janne T. Koivisto, Olli Orell, Pantea Rava, Jarno Jokinen, Mikko Kanerva, Minna Kellomaki, **“Comprehensive characterisation of the compressive behaviour of hydrogels using a new modelling procedure and redefining compression testing”**, Published in Material Today's Communications 28 (2021) 102518 (Category A1, IF: 3.383)..  
<https://doi.org/10.1016/j.mtcomm.2021.102518>
2. J. Nafar Dastgerdi, F. Sheibanian, H. Remes, H. Hosseini Toudeshky, **“Influences of Residual Stress, Surface Roughness and Peak-Load on Micro-Cracking: Sensitivity Analysis”**, Published in Metals 11 (2021) 320 (Category A1, IF: 2.35).  
<https://doi.org/10.3390/met11020320>
3. J. Nafar Dastgerdi, F. Sheibanian, H. Remes, P. Lehto, H. Hosseini Toudeshky, **“Numerical modeling approach for considering effects of surface integrity on micro-crack formation”**, Published in Journal of Constructional Steel Research 175 (2020) 106387 (Category A1, IF: 3.643).  
<https://doi.org/10.1016/j.jcsr.2020.106387>
4. J. Nafar Dastgerdi, B. Anbarlooie, A. Miettinen, H. Remes, H. Hosseini-Toudeshky, **“Effect of particle clustering on the plastic deformation and damage initiation of particle reinforced composite utilizing X-ray data and finite element modeling”**, published in Composite Part B, 153c (2018) 57-69 (Category A1, IF: 7.63).  
<http://doi.org/10.1016/j.compositesb.2018.07.027>
5. J. Nafar Dastgerdi, A. Miettinen, J. Parkkonen, H. Remes, **“Multiscale microstructural characterization of particulate-reinforced composite with non-destructive X-ray micro- and nanotomography”**, published in Composite Structures, 194 (2018) 292-301. (Category A1, IF: 5.138)  
<https://doi.org/10.1016/j.compstruct.2018.04.022>
6. J. Nafar Dastgerdi, G. Marquis, S. Sankaranarayanan, M.Gupta, **“Fatigue crack growth behavior of amorphous particulate reinforced composites”**, published in Composite Structures, 153 (2016) 782-790. (Category A1, IF: 5.138)  
<http://dx.doi.org/10.1016/j.compstruct.2016.06.071>
7. J. Nafar Dastgerdi, G. Marquis, B. Anbarlooie, S. Sankaranarayanan, M.Gupta, **“Microstructure-based modeling of the effects of particle clustering on the plastic deformation and damage initiation of amorphous particles reinforced composites”**, published in Composite Structures 142 (2016) 130-139. (Category A1, IF: 5.138)  
<http://dx.doi.org/10.1016/j.compstruct.2016.01.075>
8. J. Nafar Dastgerdi, B. Anbarloei, S. Marzban, G. Marquis, **“Mechanical and real microstructure behavior analysis of particulate-reinforced nanocomposite considering debonding damage based on cohesive finite element method”**, published in Composite Structures 122 (2015) 518-525. (Category A1, IF: 5.138)  
<http://dx.doi.org/10.1016/j.compstruct.2014.12.009>
9. J. Nafar Dastgerdi, G. Marquis, M. Salimi, **“Micromechanical modeling of nanocomposites considering debonding of reinforcements”**, published in Composites Science and Technology 93 (2014) 38–45. (Category A1, IF: 7.09)  
<http://dx.doi.org/10.1016/j.compscitech.2013.12.020>
10. J. Nafar Dastgerdi, G. Marquis, M. Salimi, **“Micromechanical modeling of nanocomposites considering debonding and waviness of reinforcements”**, published in Composite Structures 110 (2014) 1–6. (Category A1, IF: 5.138)  
<http://dx.doi.org/10.1016/j.compstruct.2013.11.017>
11. J. Nafar Dastgerdi, G. Marquis, M. Salimi, **“The effect of nanotubes waviness on mechanical properties of CNT/SMP composites”**, published in Composites Science and Technology 86 (2013) 164–169. (Category A1, IF: 7.09)  
<http://dx.doi.org/10.1016/j.compscitech.2013.07.012>
12. K. Torabi, J. Nafar Dastgerdi, **“An analytical method for free vibration analysis of Timoshenko beam theory applied to cracked nanobeams using a nonlocal elasticity model”**, published in Thin Solid Films 520 (2012) 6595–6602. (Category A1, IF: 2.03)  
<http://dx.doi.org/10.1016/j.tsf.2012.06.063>

13. K. Torabi, J. Nafar Dastgerdi, **“Solution of free vibration equation of cracked beam by using differential transformed method (DTM)”**, published in *Applied Mechanics and Materials* 110-116 (2012) 4532-4536.  
<https://www.scientific.net/AMM.110-116.4532>

Conference Papers:

1. J. Nafar Dastgerdi, O.Jaberi, H. Remes, **“Study of defect characteristics and their effect on the fatigue performance of metal additive manufactured components using X-ray computed tomography”**. Accepted in 74th IIW on-line Assembly and International Conference, July 7-21, 2021.
- 2.
3. F.Behnam, J. Nafar Dastgerdi, H.Remes, F. Mutignanti, F. Berto, **“Influence of hot deep galvanizing on fatigue behavior of welded steel joints”**. Accepted in 18<sup>th</sup> international conference of Iranian Aerospace society, February 4-6, 2020, Tehran, Iran.
4. J. Koivisto, J. Nafar Dastgerdi, O.Orell, M.Kanerva, M. Kellonmaki, **“Gellan Gum Hydrogel Compression Testing Combined with Digital Image Correlation”**. Accepted in Scandinavian Society for Biomaterial, June 12-14, 2019, Espoo, Finland.
5. J. Nafar Dastgerdi, J. Virkajarvi, H. Remes, H. Hosseini-Toudeshky, **“Damage investigation of particulate reinforced composite from X-ray tomography in-situ fatigue test”**. Accepted in 7<sup>th</sup> international conference on fatigue of composites, July 4-6, 2018, Vicenza, Italy.
6. J. Nafar Dastgerdi, P. Lehto, H. Remes, **“Effect of particle clustering on fatigue behavior of Mg-amorphous alloy composite”**. Accepted in 21<sup>th</sup> international conference on composite materials, August 20-25, 2017, Xian, China.
7. J. Nafar Dastgerdi, G. Marquis, **“Mechanical behavior analysis of particulate-reinforced nanocomposite: The roles of interphase region and particle spacing on debonding phenomena”**. Accepted in 2<sup>nd</sup> international conference on mechanics of composites, July 11-14, 2016, Porto, Portugal.
8. J. Nafar Dastgerdi, G. Marquis, **“Thermomechanical behavior of CNF/ SMPU nanocomposites considering reinforcement damage”**. Accepted in the 16<sup>th</sup> international conference on the science and application of Nanotubes (NT 15), June 29- July 3, 2015, Nagoya, Japan.
9. J. Nafar Dastgerdi, G. Marquis, S. Marzban, **“Thermal elastic buckling of plates made of carbon nanotube-reinforced composite materials”**. Accepted in the 19<sup>th</sup> international conference on composites materials (ICCM 2013), July 28-2 August, 2013, Montreal, Canada.
10. J. Nafar Dastgerdi, K. Torabi, S. Marzban, **“Solution of free vibration equation of cracked beam by using differential transformed method (DTM)”**. Accepted in the International conference on mechanical and aerospace engineering (ICMAE 2011), July 29-31, 2011, Bangkok, Thailand. *This article has been selected as an excellent paper in this conference.*
11. J. Nafar Dastgerdi, K. Torabi, **“Free vibration of cracked nanobeams using Timoshenko beam theory”**. Accepted in 2<sup>th</sup> annual conference on applications of nanotechnology in science, engineering and medicine (NTc2011), Islamic Azad university Mashhad branch, May 16-17, 2011, Mashhad, Iran
12. K. Torabi., M. Vali, and J. Nafar Dastgerdi, **“Robust controller design of MEMS gyroscope using quantitative feedback theory (QFT)”**. Accepted in the 18<sup>th</sup> annual international conference on mechanical engineering (ISME 2010), school of mechanical engineering, Sharif University of technology, May 11-13, 2010, Tehran, Iran.

Unpublished paper:

1. J. Nafar Dastgerdi, J.Koivisto, K.Santaoja,O. Orell, M. Kanerva, M. Kellomaki, **“Comprehensive characterization of compressive behaviour of hydrogels utilizing a new modelling procedure and redefining the compression testing”**. Under review in *Materials Today Communications*, Feb 2021.

Technical reports:

1. J. Nafar Dastgerdi, P. Kujala, H. Remes, J. Romanoff. **“Marin Technology Annual report 2017”**, December 2017.

2. J. Nafar Dastgerdi, "**Tomography utilization for analyzing of fatigue cracks and defect at weld root**", December 2017.
3. J. Nafar Dastgerdi, "**Thermo-mechanical stress analysis of steel maker mixer with new refractory conditions implemented by the VESUVIUS**", March 2012.

Thesis:

Doctoral thesis:

**"Mechanical modeling of particulate reinforced metal matrix composites"**

<http://urn.fi/URN:ISBN:978-952-60-6989-0>