

Reza Alebrahim

Curriculum Vitae

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Reza-Alebrahim

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Professional Summary

Highly motivated senior researcher with strong academic and technical background in smart composite structures, damage modeling using peridynamics, and shape memory alloy-based systems. Over a decade of experience in mechanical engineering research and teaching, focused on fracture mechanics, wave propagation, and advanced simulation tools.

Research Interests

Crack growth prediction in orthotropic materials using peridynamic methods

Vibration and wave propagation in composite and smart materials

Shape Memory Alloy (SMA)-based reinforcement in self-healing composites

Thermo-mechanical modeling of advanced materials

Damage detection and nonlinear ultrasonic methods

Education

2011–2015 **PhD in Mechanical Engineering**, *National University of Malaysia*, Bangi, Malaysia

2006–2008 **MSc in Mechanical Engineering (Applied Mechanics)**, *Khomeinishahr University*, Iran

2001–2005 **BSc in Mechanical Engineering (Applied Mechanics)**, *Khomeinishahr University*, Iran

Employment History

01/2022–**Senior Researcher**, *Roma Tre University*, Italy
Present

07/2021–**Visiting Scholar**, *Wrocław University of Science and Technology*, Poland
12/2021

05/2019–**Senior Researcher**, *University of Padova*, Italy
01/2021

10/2017–**Postdoctoral Researcher**, *Universiti Teknologi PETRONAS*, Malaysia
04/2019

05/2017–**Visiting Scholar**, *University of North Texas*, USA
08/2017

02/2017–**Research Associate**, *University of Arizona*, USA
04/2017

01/2016–**Postdoctoral Researcher**, *National University of Malaysia*, Malaysia
01/2017

06/2008–**Lecturer**, *University of Applied Science and Technology*, Iran
06/2011

Key Skills

Composite Structures	Modeling, design, and simulation of smart and hybrid composites
Peridynamics	Crack propagation modeling in heterogeneous and anisotropic materials
SMA	Design and integration in composite systems (e.g., Nitinol wires)
Software	ABAQUS, COMSOL, Ansys, SolidWorks, CATIA V5
Programming	MATLAB, Python

Selected Publications

- 2023 **Alebahim, R.**, Marfia, S. A fast adaptive PD-FEM coupling model for predicting cohesive crack growth. *Computer Methods in Applied Mechanics and Engineering*.
- 2023 **Alebahim, R.**, et al. A robust Moore–Penrose pseudoinverse-based FE solver for simulating non-local fracture. *CMAME*.
- 2022 **Alebahim, R.**, et al. Improved wave dispersion in 1D and 2D bond-based peridynamic media. *Computational Particle Mechanics*.
- 2019 **Alebahim, R.** Peridynamic modeling of Lamb wave propagation in bi-material plates. *Composite Structures*.
- 2018 **Alebahim, R.**, et al. Thermo-mechanical behavior of smart composite beam. *Composite Structures*.
- 2015 **Alebahim, R.**, et al. Vibration analysis of self-healing hybrid composite beam. *Composite Structures*.

Fellowships & Awards

- 2022 Reward contribution for research fellows to enhance Lazio research system (Grant No. 40166/2022)
- 2013 Fundamental approach to modeling grain growth (FRGS/2/2013/TK01/UKM/01/2)
- 2011 Characterization and Peridynamic Modeling of SMA-based Self-Healing Composites (ERGS/1/2011/TK/UKM/01/2)

Certifications

CATIA	Amirkabir University of Technology (Iran)
MATLAB	National University of Malaysia
Intel Programming	Certificate in parallel programming and optimization

Reviewer Experience

Journals	Journal of Composite Materials, CMAME, Mechanics of Time-Dependent Materials, Multidiscipline Modeling in Materials and Structures, and more
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Languages

Persian	Native
English	C1 - Proficient
Italian	B2 - Intermediate