

Marcelo A. Dias, Ph.D.

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A. CURRICULUM VITAE

1. Career since graduation

Furman University, Physics Department, USA

Professor of Physics

08/2026–Present

The University of Edinburgh, School of Engineering, United Kingdom

Honorary fellow

08/2026–Present

Reader

08/2023–07/2023

Senior Lecturer

12/2020–07/2023

- Secured 1.32M GBP from UKRI EPSRC to research metamaterials and advanced manufacturing.
- Leading the ‘Mechanics and Geometry of Advanced Structures Laboratory’ (MEGA SLab), focusing on the cutting-edge of complex structures, fracture mechanics and architected materials, and stability of structures.
- Teaching and course design in Engineering. Supervise and mentor BSc, MSc, and PhD students.
- Promote teamwork, communication, and research leadership within the UK and internationally.
- Serve as Structural Engineering with Architecture degree programme liaison.

Aarhus University, Department of Engineering, Aarhus, Denmark

Associate Professor

07/2020–12/2020

Assistant Professor

08/2017–07/2020

- Secured 2.00M DKK from Velux Fonden for innovative research in mechanical engineering.
- Led the ‘Mechanical Metamaterials and Soft Matter’ research group, focusing on the mechanics and optimization of the next generation of architected materials and structures.
- Teaching in Mechanical Engineering (BSc and MSc). Supervision of BSc, MSc, and PhD students.
- Directed the MSc in Mechanical Engineering program and taught within the same programme.

James Madison University, Department of Physics and Astronomy, Harrisonburg, VA, USA

Assistant Professor

08/2016–07/2017

- Established the ‘Structures, Materials and Art Mechanics laboratory’ (SMART Lab), focusing on experimental and computational studies of materials and structures.
- Teaching and curriculum development in the Physics programme (BSc). Supervision of BSc students.

Aalto Science Institute (ASCI), Aalto University, Espoo, Finland

Nordic Institute for Theoretical Physics (Nordita), Royal Institute of Technology and Stockholm University, Stockholm, Sweden

Research Fellow

07/2014–07/2016

- Secured approximately 780k SEK + 109k EUR from NORDITA and Aalto Science Institute.
- Researched mechanics of deformable and soft structures, with applications in advanced manufacturing.
- Collaborated with interdisciplinary teams to solve problems in mechanics of materials and structures.

Brown University, School of Engineering, Providence, RI, USA

- Modeled and optimized processes using multiphysics simulations.
- Designed and taught Mathematical Methods in Engineering and Physics (ENGN 2020).

2. University education

Ph.D. in Physics 2007–2012

University of Massachusetts Amherst, Amherst, MA, USA

- Thesis: Swelling and folding as mechanisms of 3D shape formation in thin elastic sheets.
- Recipient of Kandula Sastry graduate best thesis award (2014).
- Supervisor: Prof. Christian D. Santangelo.

M.Sc. in Physics 2005–2007

State University of São Paulo – UNESP, Theoretical Physics Institute – IFT, São Paulo, SP, Brazil

- Thesis: A geometrical approach for localization principles in functional integrals.
- Supervisor: Prof. Maria Cristina Batoni Abdalla Ribeiro.

B.Sc. in Physics 2001–2005

State University of São Paulo – UNESP, Rio Claro, SP, Brazil

3. Research grants

- **EPSRC Open Fellowship EP/W019450/1** (PI). Total award: £1.32M. *Meta-material adhesives for improved performance and functionalisation of bondlines*. 03/2023–02/2027.
- **Glen Turner Distillery** (co-I). Total award: £12.3k. *Testing of the Whisky barrels* (consultancy). 09/2022–09/2023.
- **Velux Fonden 00023059** (PI). Total award: DKK 2M (£250k). *Mechanical Metamaterials and the next generations of advanced materials*. 09/2018–12/2021.
- **Thomas B. Thriges Fond 7607-2006** (co-I). Total award: DKK 100k (£12k). *3D printing of structural composites*. 06/2020.
- **RS International Exchanges IES/R2/192128** (co-I). Total award: £4.2k. *Kirigami Shape Forming with Plastic Mechanisms*. 10/2019–10/2020.
- **Bath International Research Funding Schemes** (co-I). Total award: £3k. *Developing Networks in Europe*. 04/2019–04/2020.
- **Aarhus Universitets Forsknings Fond** (co-I). Total award: DKK 30k (£3.5k). *Industry day & Makerspace*. 10/2019–10/2020.
- **JMU 4-VA** (PI). Total award: US\$14k (£12k). *SMART Mechanics Lab: Structures, Materials and Art mechanics laboratory*. 09/2016–07/2017.
- **Aalto Science Institute Science Factories** (PI). Total award: €12k (£10k). *Statistical Physics and Mechanics of Forms and Shapes* (workshop organisation). 2015.
- **Nordita Fellowship** (PI). Total award: SDK708k (£56k). Independent postdoctoral fellowship (declined for another position). 08/2016–07/2018.
- **Aalto Science Institute Fellowship** (PI). Total award: €109k (£92k). Independent postdoctoral fellowship. 08/2014–07/2016.

Total external funding secured as PI or co-I: £1.76M.

4. Teaching qualification

Teacher Training program, modules 1–4

09/2018–12/2018

Aarhus University Educational Development Network (UPNet), Aarhus, Denmark

- Developed my approach to teaching, based on up-to-date pedagogical practices; concentrated on leadership skills and digital education through the programme options.

Physics and Astronomy New Faculty certificate

11/2016

Association of Physics Teachers (AAPT), American Center for Physics in College Park, MD, USA

- Developed my approach to teaching, based on up-to-date pedagogical practices.

Sheridan's Certificate I: teaching and pedagogical training

09/2013–05/2014

Brown University, RI, USA

- Developed my approach to teaching, based on up-to-date pedagogical practices.

5. Teaching & education

Teaching roles at the University of Edinburgh

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|-----------|---|
| 2021–2023 | Structural Mechanics 2 (University of Edinburgh) – <i>Course organiser and lecturer</i> . BEng/MEng. Fundamentals of structural mechanics for civil and mechanical engineers. |
| 2021–2023 | Engineering Mathematics 2A (University of Edinburgh) – <i>Course organiser and lecturer</i> . BEng/MEng. Fundamental principles of mathematics for all engineers. |

Teaching roles prior to the University of Edinburgh

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|-----------|---|
| 2020 | Physics and Mechanics (Aarhus University) – <i>Course organiser and lecturer</i> . BSc. Fundamental principles of physics for all engineers. |
| 2018–2020 | Beams and plates (Aarhus University) – <i>Course organiser and lecturer</i> . MSc. Advanced level course for mechanical engineers. |
| 2017–2020 | Mathematical Modelling for Applications to Science and Engineering (Aarhus University) – <i>Course organiser and lecturer</i> . MSc. Advanced level course for all engineers. |
| 2018 | Electromagnetism and The Finite Element Method (Aarhus University) – <i>Lecturer</i> (shared teaching 50:50 with other course organiser). MSc. Advanced level course for all engineers. |
| 2018 | Slender Structures (Institut d'Etudes Scientifiques de Cargèse) – <i>Course organiser and lecturer</i> . Prestigious Summer School "Mechanics and Physics of Stretchable Objects". Postgraduate level class for the world's brightest students. |
| 2016 | University Physics I (James Madison University) – <i>Course organiser and lecturer</i> . BSc. Fundamental principles of physics for all engineers. |
| 2014 | Mathematical Methods in Engineering and Physics II (Brown University) – <i>Course organiser and lecturer</i> . BSc and MSc. Advanced level course for all engineers. |
| 2010 | General Physics Laboratory I (University of Massachusetts Amherst) – <i>Teaching Assistant</i> . BSc. Fundamental principles of physics. |
| 2009 | Modern Physics (University of Massachusetts Amherst) – <i>Teaching Assistant</i> . BSc. Fundamental principles of physics. |
| 2008 | General Relativity (University of Massachusetts Amherst) – <i>Teaching Assistant</i> . BSc. Fundamental principles of physics. |
| 2008 | General Physics I (University of Massachusetts Amherst) – <i>Teaching Assistant</i> . BSc. Fundamental principles of physics. |

- 2008 Physics Laboratory II (University of Massachusetts Amherst) – *Teaching Assistant*. BSc. Fundamental principles of physics.
- 2007 Introductory Physics Laboratory II (University of Massachusetts Amherst) – *Teaching Assistant*. BSc. Fundamental principles of physics.

6. Research supervision experience

Current PhD supervision

- **Xiaoyuan Ying** (02/2023–present). Functionalisation of Kirigami-inspired structures [54, 4, 11].
- **Songlin Yue** (08/2023–present). Pattern Formation and Energy Absorption of Origami-inspired Structures [5, 55].
- **Matthaios Chouzouris** (02/2023–present). Fracture and Disorder in Metamaterials [52, 1, 53, 9, 10].
- **Ali Aitzaz** (co-supervision, 07/2021–present). Modelling of energy storage in insect wings and its application in micro-robotics.
- **Haleema Sadia** (co-supervision, 03/2022–present). Deep Learning applied to metamaterials [2, 46].
- **Sithija Mudiyansele** (co-supervision, 11/2021–present). Concrete constitutive behaviour.

Completed PhD supervision

- **Dr Adrianos A. Fotopoulos** (2021–2025, University of Edinburgh). Fracture of metamaterial interfaces [6, 12, 56, 0, 58–60, 21].
Current position: R&D Engineer at Hellenic Cables.
- **Dr Badih Rameh** (2021–2025, University of Edinburgh). From flat sheet to three-dimensional curved concrete.
Current position: Project Engineering Manager at BUTEC.
- **Dr Jasotharan Sriharan** (2021–2024, University of Edinburgh). Laminated composite honeycomb core [8, 17].
Current position: Postdoctoral researcher, University of Edinburgh.
- **Dr Ignacio Javier Andrade Silva** (2017–2019, ENS Lyon; main supervisor: M. Adda-Bedia). Wrinkling and folding induced pattern formation in elastic thin sheets [24, 27].
Current position: Postdoctoral researcher at Physics Department, FCFM, U. of Chile.
- **Dr Madison S. Krieger** (2012–2016, Brown University; main supervisor: T. Powers). Wrinkling instability in thin nematic elastomers [28, 70, 37].
Current position: Researcher at Harvard University.

Postdoctoral supervision

- **Dr Jonathan Mirpourian** (2025–present). EPSRC EP/W019450/1. Project: Meta-material adhesives for improved performance and functionalisation of bondlines. Research area: fracture mechanics of architected materials. Current position: postdoctoral researcher.
- **Dr Leo de Waal** (2023–2025). EPSRC EP/W019450/1. Research area: topological fracture mechanics [52, 1, 53, 43, 44, 5, 7, 9, 10, 57]. Current position: researcher at University College London.
- **Dr Souhayl Sadik** (2019–2021). Velux Fonden 00023059. Research area: mechanics of shells [61, 62, 20, 63, 23]. Current position: Assistant Professor at Aarhus University.

7. Academic leadership and management experience

- UK Metamaterial Network Leadership Team, Special Interest Group in Mechanical Metamaterials (2024–present).

- Laboratory manager for the “Mechanics and Geometry of Advanced Structures Laboratory” (2023–present).
- Structural Engineering with Architecture degree programme liaison (University of Edinburgh, 2021–present).
- MSc in Mechanical Engineering programme director (Aarhus University, 2020).
- Co-founder and co-coordinator of the AU Makerspace at Deep Tech Experimental Hub (Aarhus University, 2019–2020).

8. Professional activities outside the University

- Organiser for the “UKMMN Summer School 2025: Mechanical Metamaterials & Modelling”, Southampton, UK (08/2025).
- Organiser for the Mini-symposium on “Fracture in metamaterials” at the 8th International Conference on Computational Modeling of Fracture and Failure of Materials and Structures (CFRAC 2025) (2024–2025).
- Organiser for the Mini-symposium on “Mechanics and Physics of Structures” at the European Solid Mechanics Conference (ESMC 2025) (2024–2025).
- Member of the organising committee of the Euromech colloquium 630, “Nonlinear elasticity: modelling of multi-physics and applications” (2023–2024).
- Organiser for the “UKMMN Summer School 2023: Acoustic & Mechanical Metamaterials”, Manchester, UK (08/2023).
- Member of the scientific committee for the “UK Metamaterials Network International Conference on Mechanical Metamaterials” (2023).
- Organiser for the workshop on “Statistical Physics and Mechanics of Forms and Shapes”, Mariehamn, Åland, Finland (05/2015).
- Referee in peer-reviewed journals: Journal of Mechanics and Physics of Solids, Journal of Elasticity, Thin-walled Structures, Mechanics Research Communications, Physical Review Letters, Physical Review E, Nature Communications, The European Physical Journal Plus, Physics of Fluids, Journal of Applied Mechanics, Journal of Mechanisms and Robotics, Soft Matter, Proceedings of the Royal Society A, Advanced Materials, SIGGRAPH (Special Interest Group on Computer Graphics and Interactive Techniques) (2011–present).

9. Membership of societies where academic distinction is the criterion of membership

- Member of the EPSRC UK Metamaterials Network (2021–present).
- Member of the European Mechanics Society (2018–present).
- Member of the American Physical Society (2009–present).

10. Items of esteem, honours, and awards

- Awarded the UK Research and Innovation (UKRI) Engineering and Physical Sciences Research Council (EPSRC) Open Fellowship (2022).
- Awarded the Nordic Institute for Theoretical Physics (Nordita) Fellowship (2014).
- Awarded the University of Massachusetts Amherst Kandula Sastry graduate thesis award (2014).
- Awarded the Oxford Centre for Collaborative and Applied Mathematics (OCCAM) Studentship, University of Oxford (2012).
- Awarded the Theoretical Physics Institute Foundation (FIFT Fellowship), Brazil (2004).

11. Academic visits

- Visiting Professor, École Normale Supérieure de Lyon, France (09/2024–10/2024).
- Academic Visitor, Huazhong University of Science and Technology, Huazhong, China (12/2023).
- Academic Visitor, Department of Engineering Science, University of Oxford (Somerville College), Oxford, UK (08/2019).
- Academic Visitor, Department of Mechanical Engineering, University of Bath, Bath, UK (08/2019).
- Academic Visitor, Department of Civil Engineering, University of Cambridge (Corpus Christi College), Cambridge, UK (07/2019 & 04/2015).
- Visiting Assistant Professor, École Normale Supérieure de Lyon, France (07/2017–08/2017).
- Visiting Assistant Professor, Physique et Mécanique des Milieux Hétérogènes (PMMH), ESPCI, Paris, France (06/2017–07/2017).
- Academic Visitor, Okinawa Institute of Science and Technology, Okinawa, Japan (06/2016 & 06/2016).
- Academic Visitor, Kavli Institute for Theoretical Physics (KITP), Santa Barbara, CA, USA (01/2016–02/2016).
- Academic Visitor, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA (06/2013).
- Academic Visitor, Instituto de Ciencias Nucleares, UNAM, Mexico City, Mexico (04/2013).
- Academic Visitor, Institut de mécanique d'Alembert, Université Paris 6, Paris, France (06/2012).
- Academic Visitor, Albert Einstein Institute, Max Planck Institute, Golm, Germany (07/2008).
- Academic Visitor, Department of Mathematics, University of Massachusetts, Amherst, MA, USA (07/2008–10/2008).

12. Invited talks in conferences and workshops

- Geometers of Soft Materials Symposium, “Fracture, by design: topology-programmed damage in Maxwell lattices.” Philadelphia, PA, USA (03/2026)
- International Symposium on the Mathematics and Mechanics of Emerging Materials and Structures (ISM-MEMS 2025), “Exploring damage in mechanical metamaterials”. Tianjin, China (06/2025).
- EUROMECH COLLOQUIUM 647: Stability and bifurcation problems in nonlinear solid mechanics, “Damage in Maxwell Lattices”. Glasgow, UK (04/2025).
- ICERM: Semester Program Workshop on Geometry of Materials, “Exploring Damage in Mechanical Metamaterials”. Providence, RI, USA (04/2025).
- Aalto University – Crystal Flowers Workshop, “How to design stable frame structures & mechanisms”. Espoo, Finland (03/2025).
- Scottish Soft Matter Meeting 2025, “Exploring Damage in Mechanical Metamaterials”. Edinburgh, UK (02/2025).
- The XV Finnish Mechanics Days, “Is Fracture Failure or Function? The Two Sides of Metamaterials.” Jyväskylä, Finland (10/2024).
- 58th Meeting of the Society for Natural Philosophy – Nonlinear Theories in Mechanics, “Fracturing Maxwell Lattices”. Aarhus, Denmark (06/2024).
- Metamaterials UK Conference & Forum 2024, “Roadmap: Metamaterial Theory, Modelling and Design; Modelling in mechanical metamaterials”. Dorking, UK (05/2024).
- Johann Radon Institute for Computational and Applied Mathematics, Special Semester on Rigidity and Flexibility, Workshop 3 Rigidity in Action, “Fracture of two-dimensional Maxwell lattices”. Linz, Austria (04/2024).
- 3rd Academic Conference on New Materials and Structures in Civil Engineering, “Damage propagation in Architected-Interfaces”. Huazhong, China (12/2023).

- UK Metamaterials Network International Conference on Mechanical Metamaterials, “Damage propagation in Architected-Interfaces”. Manchester, UK (09/2023).
- UKMMN Shape Morphing Workshop, “Morphing Kirigami Structures”. Bath, UK (08/2023).
- UKMMN Summer School 2022: Flexible and Electromagnetic Metamaterials, “Thin elastic sheets and kirigami mechanics”. St Andrews, UK (08/2022).
- 18th European Mechanics of Materials Conference, keynote speaker at the symposia on Mechanics of soft materials and structures, “On local kirigami mechanics”. Oxford, UK (04/2022).
- Kavli Institute for Theoretical Physics – The Physics of Elastic Films: from Biological Membranes to Extreme Mechanics, “On the mechanics of kirigami structures”. Santa Barbara, CA, USA (11/2021).
- Lorentz Center – Bridging Material Science and Interaction Design, “Using paper-cutting as a strategy for 3D shape-change”. Leiden, The Netherlands (01/2020).
- NORDITA – The 10th Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems, “Asymptotic derivation of a higher-order beam model for tape springs”. Stockholm, Sweden (03/2019).
- Geometry of Soft Matter, “Using paper-cutting as a strategy for 3D shape-change”. International Institute of Physics, Natal, Brazil (05/2018).
- Recent Advances in Mechanics and Mathematics of Materials, “Kirigami actuators”. Sapienza University of Rome, Italy (10/2017).
- HYBER Symposium, “Mechanics of shape formation and controlled actuation in thin sheets of liquid-crystal elastomers”. Espoo, Finland (05/2015).
- ESPCI – Workshop on Folding and Creasing of Thin Plate Structures, “Wunderlich-Kirchhoff Model and its Application to Curved Creases”. Paris, France (03/2015).
- NORDITA – The 6th Nordic Workshop on Statistical Physics: Biological, Complex and Non-Equilibrium Systems, “Mechanics of shape formation and controlled actuation in thin sheets of liquid-crystal elastomers”. Stockholm, Sweden (02/2015).
- Princeton University – Through the Looking Glass: A Glimpse into the Geometry and Topology of Matter, “Origami folded isometric embeddings”. Princeton, NJ, USA (12/2012).
- Lorentz Center – Modern Perspectives on Thin Sheets: Geometry, Elasticity, and Statistical Physics, “Folding as a Mechanism of 3D Shape Formation in Thin Elastic Sheets”. Leiden, The Netherlands (07/2012).
- IMA – Strain Induced Shape Formation: Analysis, Geometry and Materials Science, “Curved Fold Origami”. Minneapolis, MN, USA (05/2011).

13. Selected invited seminars

- University of Pennsylvania, Mechanical Engineering Seminar, “Some observations and remarks on fracture in lattice structures.” (03/2026).
- University of Oxford, Applied Maths Seminar, “Fracture, by design: topology-programmed damage in Maxwell lattices.” (02/2026).
- University of Groningen, Seminar at the Computational Mechanical and Materials Engineering research unit, “Cracking Down on Fracture to Functionalise Damage”. (11/2025).
- University of Glasgow, Applied Maths Seminar, “Cracking Down on Fracture to Functionalise Damage”. (10/2025).
- Aoyama Gakuin University, seminar, “Cracking Down on Fracture to Functionalise Damage”. (06/2025).
- VTT Technical Research Centre of Finland, seminar, “Research activities at the Mechanics and Geometry of Advanced Structures Lab”. (03/2025).
- School of Engineering, University of Oxford, Solid Mechanics and Materials Engineering Seminar, “Exploring Damage in Mechanical Metamaterials”. (11/2024).

- Physics Department, École normale supérieure de Lyon, seminar, “Exploring Damage in Mechanical Metamaterials”. (09/2024).
- Department of Mechanical Engineering, University of Galway, seminar, “Some Investigations on Stress Localization in Thin Elastic Sheets”. (04/2024).
- Bernal Institute, School of Engineering, University of Limerick, Bernal Talk, “Some perspectives on mechanical metamaterials”. (04/2024).
- School of Natural and Computing Sciences, University of Aberdeen, seminar, “Some perspectives on mechanical metamaterials”. (02/2024).
- School of Mechanical Engineering, Tianjin University, seminar, “On the mechanics of kirigami structures”. (12/2023).
- School of Civil and Hydraulic Engineering, Huazhong University of Science and Technology, seminar, “Some perspectives on engineered materials and structures”. (12/2023).
- Department of Applied Mathematics, Imperial College London, meta-MAT online seminar, “On Micropolar Elastic Foundations and Architected Interfaces”. (11/2023).
- Laboratoire d’hydrodynamique, Ecole polytechnique, LadHyX Seminar, “Instabilities in kirigami structures”. (01/2023).
- Department of Engineering, University of Bath, Mechanical Engineering Seminar, “Instabilities in kirigami structures”. (12/2022).
- Department of Mathematics, University of Warwick, Applied Maths Seminar, “On Kirigami Mechanics”. (05/2022).
- Department of Engineering, University of Bristol, Engineering Maths Seminar, “On Kirigami Mechanics”. (05/2022).
- Department of Engineering, University of Surrey, Civil Engineering Seminar, “On Kirigami Mechanics”. (04/2022).
- Department of Mathematics, University of Durham, Applied Maths Seminar, “Using paper-cutting as a strategy for shape-changing structures”. (04/2021).
- Department of Mathematics, University of Manchester, Physical Applied Maths Seminar, “Using paper-cutting as a strategy for shape-changing structures”. (03/2021).
- Department of Engineering, University of Cambridge, Civil Engineering Seminar, “Thin Elastic Structures: A roadmap from forms to functions”. (09/2019).
- Lecture at the PhD school on “Geometry and topology in contemporary material science” at The Niels Bohr Institute, “Kirigami actuators”. (09/2017).
- PMMH, l’École Supérieure de Physique et de Chimie Industrielles de la Ville de Paris (ESPCI), seminar, “Kirigami and Biomechanics”. (06/2017).
- California Polytechnic State University, Physics and Astronomy Department, seminar, “Thin elastic structures: a roadmap from forms to functions”. (01/2016).
- Laboratoire de Mécanique des Solids, École polytechnique, seminar, “Mechanics of shape design and controlled actuation in thin sheets”. (12/2015).
- Institut de mécanique d’Alembert, Université Paris 6, seminar, “Thin Elastic Structures: A roadmap from forms to functions”. (11/2015).
- Department of Forest Products Technology, School of Chemical Technology, seminar, “Mechanics and Geometry of Complex Structures: A pathway towards functions of forms”. (06/2015).
- Aalto School of Science, Applied Physics Department, seminar, “Mechanics of shape formation and controlled actuation in thin sheets of liquid-crystal elastomers”. (03/2015).
- NORDITA – Complex systems and Biological physics seminar, “Mechanics and Geometry of Complex Structures: A pathway towards functions of forms”. (09/2014).
- Okinawa Institute of Science and Technology, seminar, “Mechanics and Geometry of Complex Structures: A pathway towards functions of forms”. (06/2014).

- Harvard University, School of Engineering and Applied Sciences, Bertoldi Group seminar, “Form and function”. (09/2013).
- Instituto de Ciencias Nucleares, UNAM, colloquium, “Origami folded isometric embeddings”. (04/2013).
- University of Pennsylvania, seminar, “Folding as a Mechanism of 3D Shape Formation in Thin Elastic Sheets”. (11/2012).
- Mount Holyoke College, Physics Department Colloquium, “The Science of Curved Fold Origami”. (11/2011).

B. LIST OF PUBLICATIONS

Globally recognized for contributions to multidisciplinary topics in engineering, materials, and physical sciences. With over 40 high-impact peer-reviewed publications, all of which are in highly prestigious journals, such as Nature (IF 64.8), ACS Nano (IF 17.1), Science Advances (IF 15.4), Composites Part B: Engineering (IF 13.1), Physical Review Letters (IF 9.2), Composites Science and Technology (IF 9.1), Journal of the Mechanics and Physics of Solids (IF 5.3), Physics of Fluids (IF 5.0), and Extreme Mechanics Letters (IF 4.7).

• Publication Impact:

- 83.3% International collaboration.
- 45.8% in the top 25% most cited documents worldwide.
- 72.7% in top 25% journals by CiteScore.
- H-index 20.

1. JOURNAL ARTICLES - PEER REVIEWED

- [1] M. Chouzouris, L. de Waal, A. Sanner, A. Lingua, D. S. Kammer, and M. A. Dias. “How geometry tames disorder in lattice fracture”. In: *Physical Review Applied* 26.1 (2026), p. 014011.
- [2] H. Sadia, M. A. Dias, and P. Alam. “AI-BioMech: Deep Learning Prediction of Mechanical Behavior in Aperiodic Biological Cellular Materials”. In: *Advanced Intelligent Discovery* (2026), e70128.
- [3] M. Walker and M. Dias. “Spherical image analysis of origami and kirigami”. In: *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences* 482.2337 (2026).
- [4] X. Ying and M. A. Dias. “Instability-induced bistable shape-morphing kirigami structures”. In: *arXiv preprint arXiv:2607.26941* (2026).
- [5] S. Yue, L. de Waal, D. G. Cava, and M. A. Dias. “Nonlinear Mechanics and Predictable Bifurcation of Multi-Cell Kresling Origami Chains”. In: *arXiv preprint arXiv:2606.11823* (2026).
- [6] A. E. Athanasiadis, O. Duncan, M. K. Budzik, and M. A. Dias. “Toughness of Confined Auxetic Foams”. In: *Accepted in Advanced Engineering Materials* (2025), p. 2500626.
- [7] B. Davies, S. Szyniszewski, M. A. Dias, L. de Waal, and *et al.* “Roadmap on metamaterial theory, modelling and design”. In: *Journal of Physics D: Applied Physics* 58.20 (2025), p. 203002.
- [8] J. Sriharan, M. A. Dias, S. Adhikari, and D. Fernando. “A semi-analytical model for predicting the shear buckling of laminated composite honeycomb cores in sandwich panels”. In: *Composite Structures* 351 (2025), p. 118629.
- [9] L. de Waal, M. Chouzouris, and M. A. Dias. “Architecting mechanisms of damage in topological metamaterials”. In: *Physical Review Research* 7.3 (2025), p. 033177.
- [10] L. de Waal, M. Chouzouris, and M. A. Dias. “Cracking Down on Fracture to Functionalize Damage”. In: *Physical Review Letters* 135 (14 2025), p. 148202.
- [11] X. Ying, D. Fernando, and M. A. Dias. “Inverse design of programmable shape-morphing kirigami structures”. In: *International Journal of Mechanical Sciences* 286 (2025), p. 109840.
- [12] A. E. Athanasiadis, M. K. Budzik, D. Fernando, and M. A. Dias. “On micropolar elastic foundations”. In: *European Journal of Mechanics-A/Solids* (2024), p. 105277.
- [13] B.-U. Bokharaie, R. Aghababaei, M. A. Dias, and M. K. Budzik. “Failure of 3D-printed composite continuous carbon fiber hexagonal frames”. In: *Composites Part B: Engineering* (2024), p. 111307.

- [14] M. L. Hedvard, M. A. Dias, and M. K. Budzik. "Toughening mechanisms and damage propagation in Architected-Interfaces". In: *International Journal of Solids and Structures* 288 (2024), p. 112600.
- [15] P. Hu, M. A. Dias, and M. K. Budzik. "Geometric tunability of interlaminar resistance". In: *Composites Part B: Engineering* (2024), p. 111839.
- [16] R. Sahli, J. Mikkelsen, M. S. Boye, M. A. Dias, and R. Aghababaei. "Frictional contact of soft polymeric shells". In: *Physical Review Letters* 133.10 (2024), p. 106202.
- [17] J. Sriharan, M. A. Dias, D. Fernando, and S. Adhikari. "A unified approach for the prediction of the effective properties of laminated composite cellular core". In: *Engineering Structures* 299 (2024), p. 117106.
- [18] V. Beatini and M. A. Dias. "A unifying approach to kinetic structures composed by bar or plate 4R-linkages". In: *Extreme Mechanics Letters* 55 (2022), p. 101833.
- [19] S. Rao, M. K. Budzik, and M. A. Dias. "On microscopic analysis of fracture in unidirectional composite material using phase field modelling". In: *Composites Science and Technology* 220 (2022), p. 109242.
- [20] S. Sadik, M. G. Walker, and M. A. Dias. "On local kirigami mechanics II: Stretchable creased solutions". In: *Journal of the Mechanics and Physics of Solids* 161 (2022), p. 104812.
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