

# XIANGXIN DANG

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Civil and Environmental Engineering, Princeton University  
Princeton, New Jersey 08544 USA

## EMPLOYMENT

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September 2023 – Present

**Princeton University, Postdoctoral Research Associate** Princeton, USA  
*Advisor: Glaucio H. Paulino*

September 2022 – August 2023

**McGill University, Postdoctoral Researcher** Montreal, Canada  
*Advisor: Damiano Pasini*

## EDUCATION

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September 2017 – June 2022

**Peking University, Ph.D., Solid Mechanics** Beijing, China  
*Thesis: Study on deployability theory and inverse design of origami and kirigami structures.*  
*Advisor: Jianxiang Wang*

September 2013 – June 2017

**Peking University, B.Eng., Engineering Mechanics** Beijing, China  
*Thesis: Elastic field of a half-plane containing circular inhomogeneities.*  
*Advisor: Jianxiang Wang*

## RESEARCH INTERESTS

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Geometric mechanics  
Reconfigurable structures and metamaterials  
Soft robotics  
Origami and Kirigami  
Tensegrity

## AWARDS AND HONORS

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1. Merit Student, Peking University (2021)
2. Dean Scholarship, College of Engineering, Peking University (2021)
3. Award for Scientific Research, Peking University (2019)
4. Presidential Scholarship, Peking University (2017, 2018)
5. Excellent Graduate, Peking University (2017)

6. Award for Academic Excellence, Peking University (2015, 2016)
7. May 4<sup>th</sup> Scholarship, Peking University (2015)

## **JOURNAL PUBLICATIONS**

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(\* Contributed equally)

1. **Xiangxin Dang**, Shujia Chen, Ali Elias Acha, Lei Wu, Damiano Pasini, “Shape and topology morphing of closed surfaces integrating origami and kirigami,” *Science Advances*: In press.
2. Tuo Zhao\*, **Xiangxin Dang**\*, Konstantinos Manos, Shixi Zang, Jyotirmoy Mandal, Minjie Chen, Glaucio H. Paulino, “Super-modular chiral origami metamaterials,” *Nature*: In press.
3. **Xiangxin Dang**, Stefano Gonella, Glaucio H. Paulino, “Folding a single high-genus surface into a repertoire of metamaterial functionalities,” *Proceedings of the National Academy of Sciences* **121**(46): e2413370121, 2024.
4. **Xiangxin Dang**, Glaucio H. Paulino, “Axisymmetric blockfold origami: a non-flat-foldable Miura variant with self-locking mechanisms and enhanced stiffness,” *Proceedings of the Royal Society A* **480**: 20230956, 2024. [\[Cover Image\]](#)
5. **Xiangxin Dang**, Lu Lu, Huiling Duan, Jianxiang Wang, “Deployment kinematics of axisymmetric Miura origami: Unit cells, tessellations, and stacked metamaterials,” *International Journal of Mechanical Sciences* **232**: 107615, 2022.
6. **Xiangxin Dang**, Fan Feng, Huiling Duan, Jianxiang Wang, “Theorem on the compatibility of spherical kirigami tessellations,” *Physical Review Letters* **128**: 035501, 2022.
7. Lu Lu, **Xiangxin Dang**, Fan Feng, Pengyu Lv, Huiling Duan, “Conical Kresling origami and its applications to curvature and energy programming,” *Proceedings of the Royal Society A* **478**: 20210712, 2022.
8. **Xiangxin Dang**, Fan Feng, Paul Plucinsky, Richard D. James, Huiling Duan, Jianxiang Wang, “Inverse design of deployable origami structures that approximate a general surface,” *International Journal of Solids and Structures* **234–235**: 111224, 2022.
9. **Xiangxin Dang**, Fan Feng, Huiling Duan, Jianxiang Wang, “Theorem for the design of deployable kirigami tessellations with different topologies,” *Physical Review E* **104**: 055006, 2021.
10. Zexiang Li, **Xiangxin Dang**, Pengyu Lv, Huiling Duan, “Blowing-only opposition control: Characteristics of turbulent drag reduction and implementation by deep learning,” *AIP Advances* **11**(3): 035016, 2021.
11. Fan Feng, **Xiangxin Dang**, Richard D. James, Paul Plucinsky, “The designs and deformations of rigidly and flat-foldable quadrilateral mesh origami,” *Journal of the Mechanics and Physics of Solids* **142**: 104018, 2020.
12. **Xiangxin Dang**, Yingjie Liu, Linjuan Wang, Jianxiang Wang, “Solutions of the elastic fields in a half-plane region containing multiple inhomogeneities with the equivalent inclusion method and the applications to properties of composites,” *Acta Mechanica* **230**: 1529–1547, 2019.

## **ORAL PRESENTATIONS**

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1. **Xiangxin Dang** et al., “Two theorems on the deployability of planar and spherical kirigami,” *Civil and Environmental Engineering Seminar Series, Princeton University*, Princeton, NJ, USA. December 2023.
2. **Xiangxin Dang**, Stefano Gonella, Glaucio H. Paulino, “Topological polarization and non-reciprocity of origami mechanical metamaterials,” *Duke Advanced Multifunctional Metamaterials Workshops 2024, Duke University*, Durham, NC, USA. November 2024.

## **TEACHING EXPERIENCE**

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1. Teaching Assistant: *Introduction to Modern Engineering*, Peking University (2016, 2017).
2. Teaching Assistant: *Continuum Mechanics*, Peking University (2018, 2019).
3. Teaching Assistant: *Mechanics of Materials*, Peking University (2022).

## **MEDIA COVERAGE**

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1. [PNAS Commentary: “Shortcuts to flexible structures” on 12/02/2024.](#)
2. [Princeton Engineering: “With a single paper sheet, engineers make dancing structures that direct light and sound” on 01/21/2025.](#)