



Uniting an academic community via *Bio-Design and Manufacturing*

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As a follow-up to the successful International Conference on Biomaterials, Bio-Design and Manufacturing (BDMC) held at the National University of Singapore in 2023 [1] and at the University of Tokyo in 2024 [2], BDMC2025 took place at the University of Oxford in the UK from August 8th to August 10th this year. After the meeting, a participant from the University of Cambridge described his experience of attending BDMC2025 on the social media platform LinkedIn in the following terms: “Many thanks to the organizers for a fantastic event bringing together nearly everyone at the interface of Biofabrication, Materials Science, and Biomedical Engineering” [3]. The conference was held on the campus of the University of Oxford and 190 researchers from 55 academic institutions across 10 countries and regions attended (Fig. 1).

1 Plenary talks and keynote speeches: key points

Since the founding of *Bio-Design and Manufacturing (BDM)* in 2018, the BDMC annual conference, led by the journal

BDM, has provided an international platform not just for the academic exchange for scholars and graduate students in this field but also, more importantly, shared academic values (such as community trust, curiosity, deep subject expertise, and commitment to quality over quantity). These bring researchers together within the academic community.

BDMC2025 focused on novel research, technology, and the interdisciplinary applications of biodesign and biomanufacturing. The conference included, but was not limited to, 10 plenary talks (Table 1), 30 keynotes, 36 invited talks, and 32 oral presentations in the following topics: (1) novel 3D bioprinting technologies; (2) biomaterials; (3) tissue engineering and regenerative medicine; (4) in vitro tissue model and organ-on-a-chip; (5) bioelectronics.

2 Sustainable development: the editorial board

In accordance with BDMC practices, we convened the editorial board during lunchtime on August 9th to review and discuss the sustainable development strategy of



Fig. 1 Group photograph from BDMC2025 at the University of Oxford, UK

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Bio-Design and Manufacturing. First, we would like to express our gratitude to the members of the editorial board as well as to the associate and academic editors (AEs) for their contributions over the past year. We shared *BDM*'s metrics compiled by our editorial office, Springer Nature, and Web of Science (WoS) (Fig. 2). These data indicate that in eight years, *BDM* has moved from an original phase into a sustainable development phase. In particular, the innovative column, “BDM at the Frontiers: Geography and Science,” enables academics to learn about the research progress of a country or region in the fields of biodesign and biomanufacturing. To date, articles on Japan, Israel, the United Kingdom and Ireland, and China have been

published [4–7]. Amongst these, the article, “*Biofabrication and Biomanufacturing in Ireland and the UK*,” written by authors from the University of Cambridge, is ranked No. 1 in all-time usage/download (Table 2) and has been cited in *Science* [8].

In 2026, this column “BDM at the Frontiers: Geography and Science” will continue to publish chapters on Singapore, the Netherlands, and the United States. In particular, this cutting-edge article from the United States is longer than the 74-page article from China [7]. As mentioned by the guest chief editor, Professor Huang from the University of Florida (Fig. 3), approximately 50–100 key contributing laboratories have been identified.

Table 1 Ten plenary talks from the UK, China, the USA, Germany, and Denmark

No.	Contributor	Title
1	Prof. Zhanfeng Cui (Univ. Oxford, UK)	Biomanufacturing and AI
2	Prof. Huayong Yang (Zhejiang Univ., China)	Bio-design and manufacturing: challenge and innovation
3	Prof. Shaochen Chen (Univ. California, San Diego, USA)	High cell density 3D bioprinting
4	Prof. Manuel Salmeron-Sanchez (Univ. Glasgow, UK)	Engineered biomaterials for regeneration and mechanobiology
5	Prof. James J. Yoo (Wake Forest Univ., USA)	Biomanufacturing endeavors for translational applications
6	Prof. Boris N. Chichkov (Leibniz Univ. Hannover, Germany)	Laser bioprinting
7	Prof. Y. Shrike Zhang (Harvard Medical School, USA)	3D bioprinting for high-content tissue fabrication
8	Prof. Yan Yan Shery Huang (Univ. Cambridge, UK)	Multiscale biofabrication for sustainability and engineering biology
9	Prof. Jeroen Bergmann (Univ. Southern Denmark, Denmark)	Rethinking complexity in medical device policy with data science
10	Prof. Molly M. Stevens (Univ. Oxford, UK)	Advances in biofabrication for regenerative medicine, advanced therapeutics and early disease detection

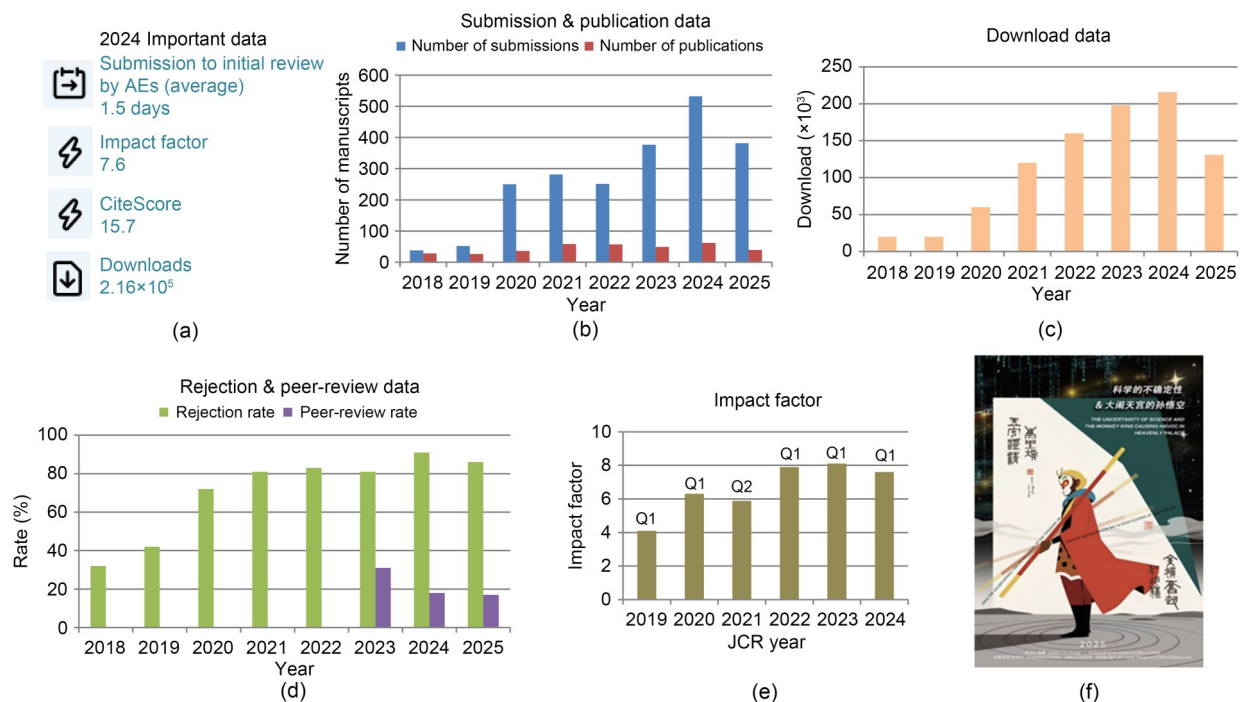


Fig. 2 *BDM* metrics compiled by our editorial office, Springer Nature, and WoS: (a) 2024 important data; (b) submission and publication data from 2018 to July 2025; (c) download data from 2018 to June 2025; (d) rejection data from 2018 to July 2025 and peer-review data from 2023 to July 2025; (e) impact factor from JCR year 2019 to 2024; (f) *BDM* souvenir 2025. JCR: Journal Citation Reports

Table 2 Top 10 full-text article requests/downloads by May 2025

Rank	Title	Corresponding author(s)	Year	Article requests by May 2025	Ref.
1	Biofabrication and biomanufacturing in Ireland and the UK	James P. K. Armstrong and Yan Yan Shery Huang	2024	10 138	[6]
2	A state-of-the-art review of the fabrication and characteristics of titanium and its alloys for biomedical applications	Erfan Rezvani Ghomi and Seeram Ramakrishna	2022	8161	[9]
3	A narrative review of the success of intramuscular gluteal injections and its impact in psychiatry	Erfan Soliman, Sarujan Ranjan, and Tianyou Xu	2018	3947	[10]
4	3D bioprinting: current status and trends—a guide to the literature and industrial practice	Mattia Sponchioni	2022	3697	[11]
5	Structural design and mechanical performance of composite vascular grafts	Rong Liu	2022	2930	[12]
6	3D printing for tissue/organ regeneration in China	Huayong Yang and Yong He	2025	2380	[7]
7	Electrochemical biosensors for point-of-care testing	Seung Hwan Ko	2024	2132	[13]
8	Designs and methodologies to recreate in vitro human gut microbiota models	Giovanni Vozzi	2023	2060	[14]
9	The emerging technology of biohybrid micro-robots: a review	Tao Jiang and Jianzhong Shang	2022	1752	[15]
10	Mechanical stimulation devices for mechanobiology studies: a market, literature, and patents review	F. Melo-Fonseca	2023	1365	[16]

Progress Report

Biofabrication and Biomedical Manufacturing Research Frontiers in the U.S.

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Overview

1 Introduction

- Motivation
- Scope

2 Biofabrication and Biomedical Manufacturing Methods

- 2.1 Standard 3D bioprinting techniques
- 2.2 Alternative biofabrication and biomedical manufacturing processes
- 2.3 Technological innovation

3 Materials for Biofabrication and Biomedical Manufacturing

- 3.1 Polymers
- 3.2 Metals
- 3.3 Ceramics
- 3.4 Composites
- 3.5 Primary cells and cell lines

4 Physics Modeling in Biofabrication and Biomedical Manufacturing

- 4.1 Process dynamics modeling
- 4.2 Ink rheology characterization and modeling for biofabrication
- 4.3 AI in biofabrication and biomedical manufacturing
- 4.4 Emerging topics

5 Applications

- 5.1 Engineered tissue constructs for in vivo use
- 5.2 Engineered tissue models as in vitro platforms
- 5.3 Organoid engineering
- 5.4 Medical devices
- 5.5 Clinical and commercial translational successes

6 Summary

- Summary
- Future directions

Fig. 3 Writing plan of the United States edition (slides appeared at BDM's Editorial Board Meeting during the lunchtime of Aug. 9, 2025)

We believe that our readers will now look forward to seeing articles about “The Frontiers of BDM in the United States” and other regions. This might be one of the driving forces for the sustainable development of this journal, as its pursuit of “content is king” is exactly what our scientific community expects, and this is the impact of the journal.

3 BDMC: a scientific community

BDMC2025 has come to a successful conclusion, but as the chief editor of the journal, I still recall every little detail of our scientific community during the conference. There is positive energy in the scientific community. I believe it is highly beneficial to advocate for holding annual journal conferences at world-class universities because our aim is to enable scholars and graduate students to enter such campuses and laboratories, experience their research atmosphere and strength, and enhance their curiosity about science and innovative consciousness, especially in the current environment. In short, whether we are engaged in scientific research or running journals, we are confronted with the challenges of truthfulness and objectivity, trust and influence every day.

Finally, I was very glad to hear Professor Cui, co-Editor-in-Chief of *BDM*, say at the closing ceremony of this year’s BDMC that the BDMC is a healthy scientific community. We look forward to seeing you at the journal’s next annual meeting at BDMC 2026!

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