# Article information:

Material extrusion additive manufacturing of continuous fibre reinforced polymer matrix composites: A review and outlook - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S1359836821005266?via%3Dihub>

# Article summary:

1. Continuous fibre reinforced 3D printing technology is a relatively novel research area.

2. The current performance of continuous fibre 3D printed composites is not yet in a position to compete with conventionally processed composites due to defects and low fibre volume fraction.

3. Challenges still remain in materials and process development, but there is potential for utilizing the ability of the newly developed process to steer fibre path, which brings new possibilities and challenges to continuous fibre composite AM, as well as to the conventional composite manufacturing and design.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article "Material extrusion additive manufacturing of continuous fibre reinforced polymer matrix composites: A review and outlook" provides a comprehensive overview of the state-of-the-art in continuous fibre reinforced 3D printing technology. The authors discuss the materials and devices used in current studies, different processing methods, and provide a summary of mechanical properties. They also present potential applications for this technology.

Overall, the article is well-researched and informative. However, there are some potential biases and limitations to consider. Firstly, the authors focus exclusively on continuous fibre ME process, which may limit the scope of their analysis. Additionally, they note that current continuous fibre 3D printed composites are not yet able to compete with conventionally processed composites due to defects and low fibre volume fraction. This suggests that there may be limitations to the technology's practical applications.

Furthermore, while the authors provide a thorough summary of mechanical properties, they do not explore potential risks associated with using these materials in real-world applications. For example, it is unclear whether these materials have been tested for biocompatibility or environmental impact.

Finally, while the authors acknowledge challenges in materials and process development, they do not explore potential counterarguments or alternative approaches to addressing these challenges. This may limit the article's overall objectivity.

In conclusion, while this article provides valuable insights into continuous fibre reinforced 3D printing technology, readers should be aware of its potential biases and limitations. Further research is needed to fully understand the practical applications and risks associated with this emerging technology.

# Topics for further research:

* Biocompatibility testing of continuous fibre reinforced 3D printed composites
* Environmental impact of continuous fibre reinforced 3D printing technology
* Alternative approaches to addressing challenges in continuous fibre reinforced 3D printing
* Comparison of continuous fibre reinforced 3D printed composites to conventionally processed composites
* Limitations of continuous fibre volume fraction in 3D printed composites
* Applications of continuous fibre reinforced 3D printing technology beyond mechanical properties

# Report location:

<https://www.fullpicture.app/item/2b0084ab22389dff7b7b16e0e9887e03>