# Article information:

19.10% Efficiency and 80.5% Fill Factor Layer‐by‐Layer Organic Solar Cells Realized by 4‐Bis(2‐Thienyl)Pyrrole‐2,5‐Dione Based Polymer Additives for Inducing Vertical Segregation Morphology - Zhou - Advanced Materials - Wiley Online Library  
<https://onlinelibrary.wiley.com/doi/10.1002/adma.202208279>

# Article summary:

1. A new method of using conjugated polymers as additives to optimize the morphology of organic solar cells (OSCs) is reported.

2. Four polymers with different side chains are developed and used as efficient additives to optimize the PM6 fibril matrix for facilitating the penetration of BTP-eC9 and forming an intertwined D/A bicontinuous network with a vertical segregation.

3. The optimized morphology contributes to a champion PCE of 19.10% with a high FF of 80.5%.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article is generally reliable, providing detailed information about the research conducted and its results. The authors provide evidence for their claims, such as citing previous studies that have been conducted in this field, and they also provide data from their experiments to support their findings. However, there are some potential biases in the article that should be noted. For example, the authors do not explore any counterarguments or present any opposing views on their research or conclusions. Additionally, there is no discussion of possible risks associated with using these polymers as additives for OSCs, which could be important for readers to consider before attempting to replicate this research. Furthermore, while the authors cite other studies in this field, they do not provide any references or sources for these citations, which could make it difficult for readers to verify the accuracy of these claims. Finally, there is a lack of detail regarding how exactly these polymers were developed and what materials were used in their synthesis process; without this information it can be difficult to assess whether or not these polymers are safe and effective for use in OSCs.

# Topics for further research:

* Risks associated with OSCs
* Counterarguments to OSCs research
* Synthesis of polymers for OSCs
* Materials used in OSCs synthesis
* References for OSCs research
* Opposing views on OSCs research

# Report location:

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