# Article information:

Organic mixed ionic–electronic conductors | Nature Materials
<https://www.nature.com/articles/s41563-019-0435-z>

# Article summary:

1. Organic mixed ionic-electronic conductors (OMIECs) are soft electrical conductors that can efficiently support both ionic and electronic transport.

2. The development of OMIECs has led to a wide range of applications, including batteries, supercapacitors, actuators, sensors, and bioelectronic probes.

3. Understanding the interplay between ionic transport, electronic transport, and ionic-electronic coupling is crucial for advancing the field of OMIECs and optimizing their performance in various applications.

# 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 titled "Organic mixed ionic–electronic conductors" published in Nature Materials discusses the development and applications of organic materials that support both ionic and electronic transport. The authors highlight the importance of understanding the interplay between these two types of transport and their dependence on various factors such as processing, synthetic structure, microstructure/morphology, and electrolyte choice.

One potential bias in the article is its focus on the positive aspects and potential applications of organic mixed ionic-electronic conductors (OMIECs). While the authors acknowledge that many OMIECs were initially developed for other purposes and their ion conducting properties were overlooked, they primarily emphasize the growing number of applications where ion transport is crucial. This promotional tone may downplay any potential limitations or challenges associated with OMIECs.

Additionally, the article does not provide a comprehensive analysis of the risks or drawbacks associated with OMIECs. While it briefly mentions that OMIECs are "soft" solids with weak intermolecular interactions and highly disordered morphology, it does not delve into any potential issues related to stability, durability, or long-term performance. This lack of discussion on possible risks or limitations could be seen as a bias towards presenting only positive aspects of OMIECs.

Furthermore, the article does not present counterarguments or alternative viewpoints regarding the use of OMIECs. It primarily focuses on their potential applications and highlights their diverse material properties targets and device figures of merit. A more balanced approach would have included a discussion on any criticisms or challenges faced by researchers working with OMIECs.

The article also lacks specific evidence or examples to support some of its claims. For instance, it states that energy storage in OMIEC-based batteries depends on the strength of ionic-electronic coupling without providing any specific studies or data to support this claim. Including references to relevant research would have strengthened the arguments made in the article.

Overall, while the article provides a comprehensive overview of the development and applications of OMIECs, it exhibits potential biases towards promoting their positive aspects and lacks a balanced discussion on potential risks or limitations. Including more evidence, addressing counterarguments, and presenting a more balanced perspective would have improved the overall credibility of the article.

# Topics for further research:

* Limitations of organic mixed ionic-electronic conductors
* Challenges in stability and durability of OMIECs
* Criticisms of using OMIECs in electronic devices
* Risks associated with the use of OMIECs in energy storage applications
* Studies on the strength of ionic-electronic coupling in OMIEC-based batteries
* Alternative viewpoints on the development and applications of OMIECs

# Report location:

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