# Article information:

Frontiers | A low-cost naphthaldiimide based organic cathode for rechargeable lithium-ion batteries
<https://www.frontiersin.org/articles/10.3389/fchem.2022.1056244/full>

# Article summary:

1. Lithium-ion batteries (LIBs) are widely used in portable electronic devices, electric vehicles, and aerospace equipment due to their high energy density and low environmental pollution.

2. Naphthaldiimides (NDI) is a class of planar and aromatic n-type organic compounds with high redox activity, which has attracted much attention for its remarkable specific capacity and outstanding electrochemical exchange performance.

3. This study focused on exploring the electrochemical properties of an NDI-derived organic cathode material by synthesizing an NDI derivative of 2,7-bis (2-((2-hydroxyethyl) amino) ethyl) benzo [lmn] [3,8] phenanthroline-1,3,6,8(2H, 7H)-tetraone (NDI-NHOH).

# 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:

This article provides a comprehensive overview of the use of naphthaldiimide based organic cathodes for rechargeable lithium ion batteries. The authors provide a detailed description of the advantages of using such materials over traditional inorganic materials as well as the challenges associated with them. The authors also discuss various strategies for improving the performance of these materials through modifications to their structure or by introducing electron withdrawing units and redox active units into the conjugated polymer backbone.

The article is generally reliable and trustworthy in its content. It provides a thorough overview of the topic at hand and cites relevant research studies to support its claims. The authors also provide detailed descriptions of various strategies for improving the performance of these materials which could be useful for further research in this area.

However, there are some potential biases that should be noted when reading this article. For example, while it does mention some potential risks associated with using these materials such as persistent dissolution and redeposition caused by their high solubility, it does not explore any possible counterarguments or alternative solutions to these issues. Additionally, while it does mention some strategies for improving the performance of these materials through modifications to their structure or by introducing electron withdrawing units and redeposition active units into the conjugated polymer backbone, it does not provide any evidence to support these claims or explore any other possible strategies that could be used to improve their performance.

In conclusion, this article provides a comprehensive overview on naphthaldiimide based organic cathodes for rechargeable lithium ion batteries but should be read with caution due

# Topics for further research:

* Lithium ion battery performance optimization
* Redox active units for organic cathodes
* Electron withdrawing units for organic cathodes
* Alternative solutions to persistent dissolution
* Counterarguments to naphthaldiimide based organic cathodes
* Modifications to conjugated polymer backbones for improved performance

# Report location:

<https://www.fullpicture.app/item/a734a15b53d1d8fd5b7bfde93e8354f4>