# Article information:

Long-cycling and safe lithium metal batteries enabled by the synergetic strategy of ex situ anodic pretreatment and an in-built gel polymer electrolyte - Journal of Materials Chemistry A (RSC Publishing)
<https://pubs.rsc.org/en/content/articlelanding/2020/ta/d0ta02148b>

# Article summary:

1. Lithium metal batteries (LMBs) have a high theoretical specific capacity, but their wide application is limited by side reactions and dendrite growth due to the highly reactive nature of lithium metal paired with traditional liquid electrolytes.

2. This article presents a synergetic strategy combining ex situ chemical pretreatment on lithium metal anodes (LMAs) and in situ cationic polymerization of DOL to tackle these issues.

3. The novel poly-DOL gel polymer electrolyte exhibits excellent compatibility with various intercalating cathodes, such as LiFePO4, LiMn2O4 and LiCoO2, resulting in improved safety and elongated lifetime for LMBs.

# 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 “Long-cycling and safe lithium metal batteries enabled by the synergetic strategy of ex situ anodic pretreatment and an in-built gel polymer electrolyte” is generally reliable and trustworthy. It provides a detailed description of the research conducted by the authors, including the methodology used, results obtained, and conclusions drawn from them. The authors also provide evidence for their claims through references to other studies that support their findings. Furthermore, they acknowledge potential risks associated with their research such as thermal runaway in cells due to dendrite growth.

However, there are some points that could be improved upon in terms of trustworthiness and reliability. For example, while the authors discuss potential risks associated with their research, they do not provide any information on how these risks can be mitigated or avoided when using this technology in practice. Additionally, while they mention possible counterarguments to their findings, they do not explore them in detail or provide evidence for why those arguments may not be valid in this case. Finally, it would be beneficial if the authors provided more information on how this technology could be applied in real-world scenarios beyond just laboratory experiments.

# Topics for further research:

* Mitigating risks associated with lithium metal batteries
* Real-world applications of lithium metal batteries
* Counterarguments to lithium metal battery research
* Evidence for lithium metal battery research
* Thermal runaway in lithium metal batteries
* Gel polymer electrolyte for lithium metal batteries

# Report location:

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