# Article information:

Suppressing vanadium dissolution by modulating aqueous electrolyte structure for ultralong lifespan zinc ion batteries at low current density - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S2405829722001751>

# Article summary:

1. A novel 2M Zn(OTF)2+8M LiOTF electrolyte is designed to suppress vanadium dissolution in aqueous zinc ion batteries (RAZIBs).

2. Tuning the Zn-ion solvation sheath can minimize the accumulated tunnel water molecules and inhibit crystalline-to-amorphous transformation to maintain host lattice integrity.

3. The VO2 cathode exhibits impressive cycling stability with a capacity retention of 98.2% over 400 cycles at a low current density of 0.1 A g−1, providing an inspiring strategy for inhibiting vanadium dissolution in RAZIBs.

# 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:

作为一篇科学论文，该文章并没有明显的偏见或宣传内容。然而，它可能存在一些片面报道和缺失的考虑点。

首先，文章强调了使用钒基化合物作为阳极材料的优点，但并未探讨其潜在的风险和限制。例如，钒是一种有毒金属，在处理和回收废旧电池时可能会对环境造成危害。此外，钒基化合物通常需要高温煅烧才能制备出纯度较高的材料，这可能会增加生产成本和环境影响。

其次，文章提到了优化电解液结构以抑制钒溶解的方法，并声称可以实现“超长寿命”的锌离子电池。然而，该研究仅在低电流密度下进行了测试，并未考虑高电流密度下的性能表现。此外，在实际应用中，锌离子电池还需要满足其他要求，如高能量密度、快速充放电等。

最后，在介绍锌离子电池技术时，文章没有平等地呈现其他替代技术（如锂离子电池、钠离子电池等）的优缺点和发展趋势。这可能会导致读者对该技术的理解存在偏差。

综上所述，虽然该文章并没有明显的偏见或宣传内容，但仍存在一些片面报道和缺失的考虑点。在阅读和引用该文章时，需要注意其局限性和不足之处。

# Topics for further research:

* Potential risks and limitations of using vanadium-based compounds as anode materials
* High-temperature calcination process and its impact on production cost and environmental footprint
* Performance of zinc-ion batteries at high current densities and other requirements for practical applications
* Comparison of zinc-ion batteries with other alternative technologies
* such as lithium-ion and sodium-ion batteries
* Potential environmental and health hazards associated with handling and recycling of used batteries
* Need for further research and development to address the limitations and challenges of zinc-ion batteries.

# Report location:

<https://www.fullpicture.app/item/f445c1532efe188bb0d94717d97e6a9c>