# Article information:

Atomic Fe on hierarchically ordered porous carbon towards High-performance Lithium-sulfur batteries - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S1572665722010402>

# Article summary:

1. Lithium-sulfur (Li-S) batteries are promising candidates for next-generation battery systems due to their excellent theoretical specific capacity and ultra-high energy density, but they face challenges such as large volume change during charge-discharge process and poor conductivity of sulfur.

2. Conductive microporous/mesoporous carbon is used as sulfur hosts to increase contact areas with insulating sulfur/Li2S and accommodate the sulfur volume change in the electrochemical reaction. Hierarchically porous carbon with abundant micropores/mesopores and interconnected macropores can further boost overall performance of Li-S batteries.

3. Single atoms with monodisperse transition-metal centers possess a theoretical 100% utilization efficiency, unsaturated metal species, and special electronic structure, making them a promising solution to suppress the shuttle effect of intermediate lithium polysulfide (LiPS) in Li-S batteries.

# 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:

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，文章提到了Li-S电池的优点，如理论比容量和超高能量密度。但是，它没有提到Li-S电池的缺点，例如其相对较低的循环寿命和安全性问题。

其次，在讨论解决硫阳极导电性和体积变化问题时，文章强调了多孔碳材料的重要性，并提到了具有分层孔结构的碳材料可以更好地促进离子/电子传输。然而，文章没有探讨这些材料可能存在的成本、可扩展性或制备难度等方面的问题。

此外，在讨论抑制穿梭效应时，文章提到了将金属氧化物、氮化物和硫化物等极性物质引入多孔碳中以改善与LiPSs之间的亲和力。然而，文章没有探讨这些添加剂可能会对电池性能产生负面影响（例如降低比容量或增加内阻）。

最后，在整篇文章中，并未探索任何反驳观点或风险因素。虽然这是一篇科学论文，但作者仍应该注意到可能存在的负面影响，并平等地呈现双方观点。

# Topics for further research:

* Li-S电池的缺点
* 成本、可扩展性或制备难度问题
* 添加剂可能对电池性能产生负面影响
* 反驳观点
* 风险因素
* 平等呈现双方观点

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