# Article information:

Asymmetric pore windows in MOF membranes for natural gas valorization | Nature
<https://www.nature.com/articles/s41586-022-04763-5>

# Article summary:

1. Natural gas purification is a challenge due to contamination with nitrogen and carbon dioxide, and cryogenic distillation is currently the only deployed technology for N2 removal at the plant scale.

2. Inorganic membranes based on zeolites have optimal N2/CH4 selectivities above 10 but low productivities due to small pore apertures.

3. MOFs with asymmetric pore windows, created by subtle pore-aperture editing, show promise for N2/CH4 separation using mixed-linker Zr-fum-mes-fcu-MOF membranes fabricated through electrochemical synthesis using water as solvent.

# Article rating:

Appears strongly imbalanced: The article is written in a biased or one-sided way, and the information it provides is not trustworthy enough to be considered a reliable source. You should consult other sources to find reliable information on the presented issues.

# Article analysis:

该文章主要介绍了一种利用金属有机框架（MOF）膜进行天然气分离的新技术。然而，该文章存在以下问题：

1. 偏见来源：文章没有提及其他可能存在的天然气分离技术，只是简单地比较了不同材料的性能。这可能会导致读者对该技术的实际应用和市场前景产生误解。

2. 片面报道：文章只关注了N2/CH4分离，而忽略了其他可能存在的污染物，如硫化氢、二氧化碳等。这些污染物也会影响天然气的质量和使用效果。

3. 缺失考虑点：文章没有考虑到MOF膜在实际应用中可能遇到的问题，如稳定性、耐久性、成本等。这些因素都会影响该技术在工业上的可行性和经济效益。

4. 主张缺失证据：文章声称MOF膜可以实现高效分离N2和CH4，但并未提供足够的实验证据来支持这一主张。此外，文章也没有探讨其他可能存在的限制因素。

5. 未探索反驳：文章没有探讨其他学者或研究团队对该技术的反驳或质疑。这可能会导致读者对该技术的实际效果和可行性产生误解。

6. 宣传内容：文章过于强调MOF膜的优点，而忽略了其潜在的风险和局限性。这可能会误导读者对该技术的实际应用和市场前景产生不切实际的期望。

综上所述，该文章存在一些偏见、片面报道、缺失考虑点、主张缺失证据、未探索反驳和宣传内容等问题。因此，读者需要谨慎评估该技术的实际应用价值和市场前景。

# Topics for further research:

* Other natural gas separation technologies
* Other potential contaminants in natural gas
* Potential issues with MOF membrane stability
* durability
* and cost
* Evidence supporting the efficiency of MOF membranes for N2/CH4 separation
* Criticisms or challenges to the MOF membrane technology
* Potential risks and limitations of MOF membranes for natural gas separation

# Report location:

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