# Article information:

Coupled hydro-mechanical modelling of dilatancy controlled gas flow and gas induced fracturing in saturated claystone - ScienceDirect  
<https://www.sciencedirect.com/science/article/abs/pii/S1365160920309503>

# Article summary:

1. Gas migration in clay-based porous media is a complex process that involves dilatancy controlled gas flow, gas induced fracturing, and the development of gas preferential pathways.

2. Existing numerical models for simulating gas migration in claystone have limitations, such as not accounting for the saturated/unsaturated transition or assuming a single porosity model.

3. A coupled hydro-mechanical (HM) model based on double porosity poroelasticity is proposed in this paper to better simulate gas migration in argillaceous rocks. The model accounts for the HM behavior of both the matrix and fractures and is validated against laboratory experiments.

# 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:

该文章主要介绍了在低渗透性粘土岩中气体迁移的数学模型，以及如何通过模拟实验来验证该模型。然而，该文章存在以下问题：

1. 偏袒：文章只介绍了一种数学模型，并未探讨其他可能的模型或方法。这可能导致作者忽略了其他可能的解释和结果。

2. 片面报道：文章只关注了气体迁移对粘土岩的影响，但并未考虑其他因素对储存核废料的影响，例如地质构造、水文地质条件等。

3. 缺失考虑点：文章没有考虑气体迁移对环境和人类健康的潜在风险。如果气体泄漏到大气中，可能会对生态系统和人类健康造成危害。

4. 未探索反驳：文章没有探讨任何反驳或争议观点。这可能导致读者无法全面理解该领域的争议和不确定性。

5. 宣传内容：文章强调了核废料储存的必要性和安全性，但并未提及任何潜在问题或挑战。这可能会误导读者认为核废料储存是完全安全和可行的。

综上所述，该文章存在一些偏见、片面报道、缺失考虑点和宣传内容。为了更好地理解气体迁移在低渗透性粘土岩中的影响以及核废料储存的潜在风险，需要进一步研究和讨论。

# Topics for further research:

* Alternative mathematical models for gas migration in low-permeability clay rocks
* Other factors affecting nuclear waste storage
* such as geological structures and hydrogeological conditions
* Potential environmental and health risks associated with gas migration and leakage
* Controversial viewpoints and debates in the field of nuclear waste storage
* Potential challenges and drawbacks of nuclear waste storage
* in addition to its necessity and safety
* Further research and discussion needed to fully understand the impact of gas migration in low-permeability clay rocks and the risks associated with nuclear waste storage.

# Report location:

<https://www.fullpicture.app/item/73f05048573d7d558aed987bdd183d96>