# Article information:

Numerical Study of Flow and Heat Transfer of N-decane with Pyrolysis and Pyrolytic Coking under Supercritical Pressures | Request PDF  
<https://www.researchgate.net/publication/318370974_Numerical_Study_of_Flow_and_Heat_Transfer_of_N-decane_with_Pyrolysis_and_Pyrolytic_Coking_under_Supercritical_Pressures>

# Article summary:

1. A numerical model is developed to investigate the flow and heat transfer of pyrolytic reacted n-decane with pyrolytic coking in the engine cooling tube under supercritical pressure.

2. The effects of heat flux on the pyrolytic reaction and distribution of pyrolytic coking rate are studied, and surface coking is found to have negative impacts on the cooling process.

3. The wall thermal state can influence the hydrocarbon slot film cooling performance, and an increase in wall cooling heat flux is beneficial for film cooling but has unfavorable effects on friction reduction performance.

# 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:

由于本文是一篇科学研究论文，其内容主要涉及数值模拟和实验数据的分析，因此不存在明显的偏见或宣传内容。然而，在文章中可能存在一些缺失的考虑点或未探索的反驳，例如在讨论表面焦化现象时，没有提及可能的解决方案或对其潜在风险进行评估。此外，在讨论壁面热状态对氢碳燃料薄膜冷却性能影响时，文章只考虑了化学反应对冷却效果的影响，而忽略了其他因素（如流动特性）可能对冷却性能产生的影响。因此，在进一步研究中需要更全面地考虑这些因素，并进行更深入的分析和探讨。

# Topics for further research:

* Surface coking mitigation strategies
* Potential risks of surface coking
* Other factors affecting cooling performance in hydrogen-carbon fuel films
* Flow characteristics in cooling performance
* Comprehensive consideration of factors affecting cooling performance
* In-depth analysis and discussion of cooling performance factors

# Report location:

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