

Risk-Based Inspection and Maintenance for Safe Handling and Use of Hydrogen

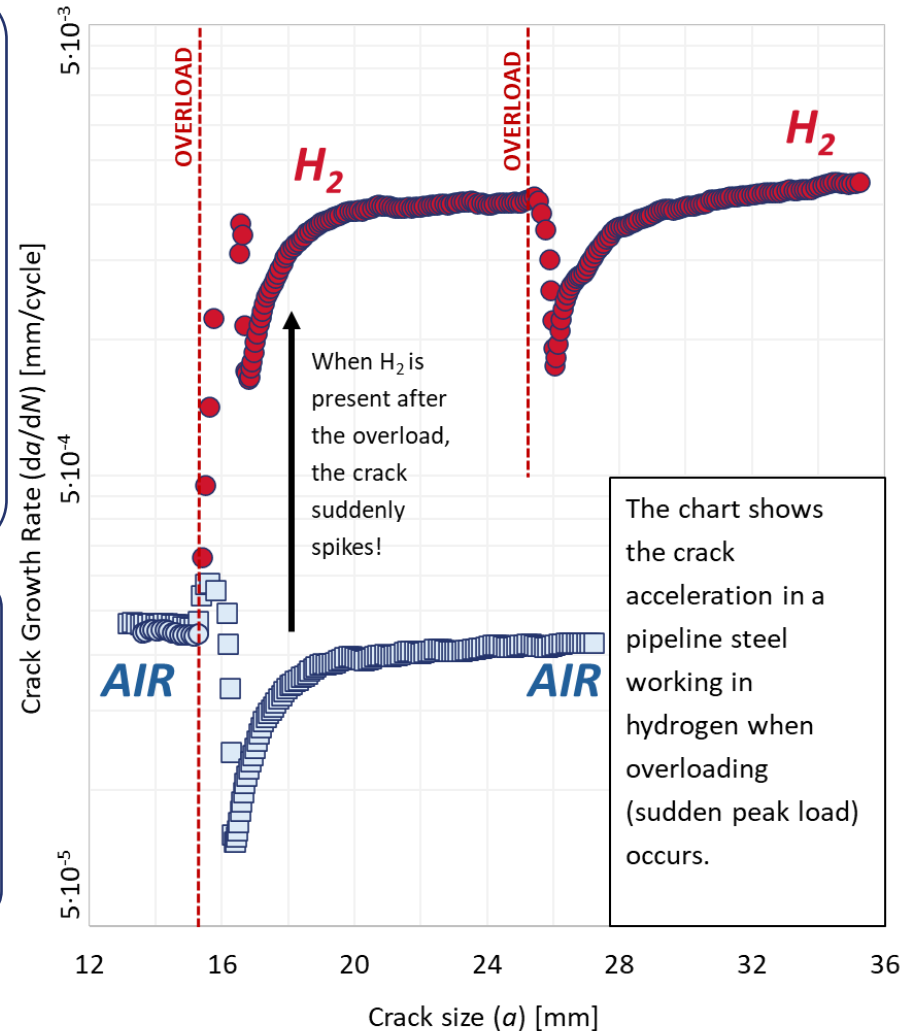
Introduction: My project focuses on development and optimization of inspection procedures for hydrogen systems and hydrogen degradation in metals. The shown work deals with the hydrogen-induced fatigue crack acceleration in a pipeline steel, which is relevant for material integrity and safety assessment.

Primary objective

- Developing optimal inspection planning for hydrogen systems considering material integrity.

Secondary objectives

- Optimizing inspection programs through cost-effectiveness analysis.
- Investigating hydrogen-enhanced fatigue in pipeline steels (*focus of this year Hyschool presentation!*)



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Related projects: SH2IFT-2

Hi! I am Leonardo Giannini, I am an energy engineer, and my background includes the design of energy systems, power plants and hydrogen technologies. To this end, I am completing a Ph.D. program at NTNU on inspection of H₂ systems with a focus on material integrity. I am at the last year, so wish me luck! ;)



Estimated progress of the PhD project:



Publications:

- Embrittlement, Degradation and Loss Prevention of Hydrogen Pipelines, MRS Bulletin, 2024.
- Peer-Reviewed Conference Papers: see