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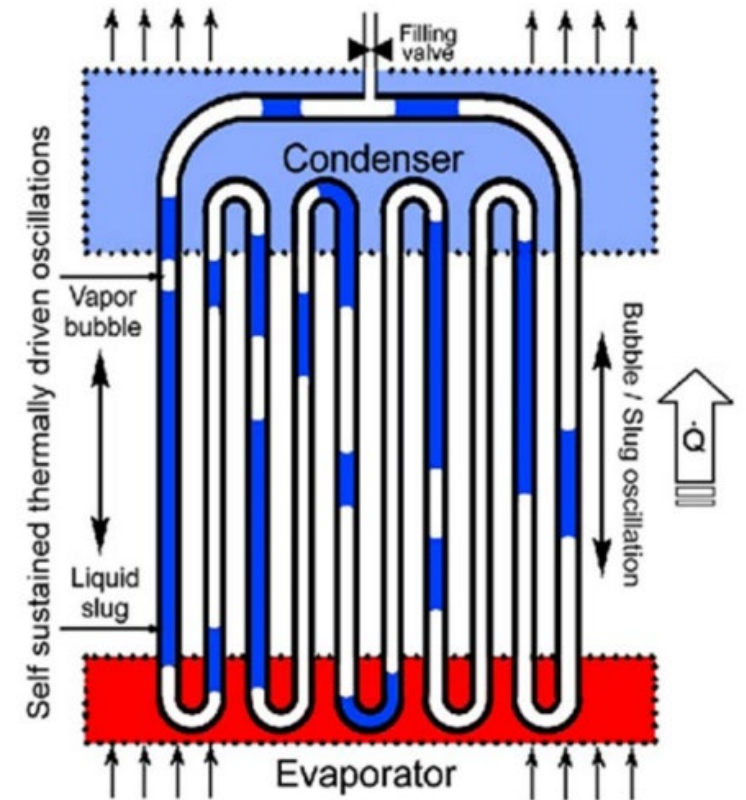
Project: Hydrogen Pulsating Heat Pipes

Advisor(s): Franklin Miller and John Pfothenhauer



Background

- Pulsating Heat Pipes (PHPs) are a unique heat pipe variant that provide several improvements over the current state of the art.
- Small ID tubing in a serpentine shape filled with saturated hydrogen.
- Surface tension $>$ gravity \rightarrow saturated phases separate and are suspended in the tubes.
- Chaotic fluid behavior due to boiling/condensation and complex dynamics of multiple plugs/slugs in series.



Schematic of a Pulsating Heat Pipes (PHP)



Project Goals

1. Characterize the thermal performance of hydrogen pulsating heat pipes as a function of their adiabatic length, applied heat load, fill ratio, and orientation.
2. Determine the limits of length independence for the conductance of hydrogen pulsating heat pipes.
3. Infer PHP phase and flow behavior and correlate with performance and failure points.