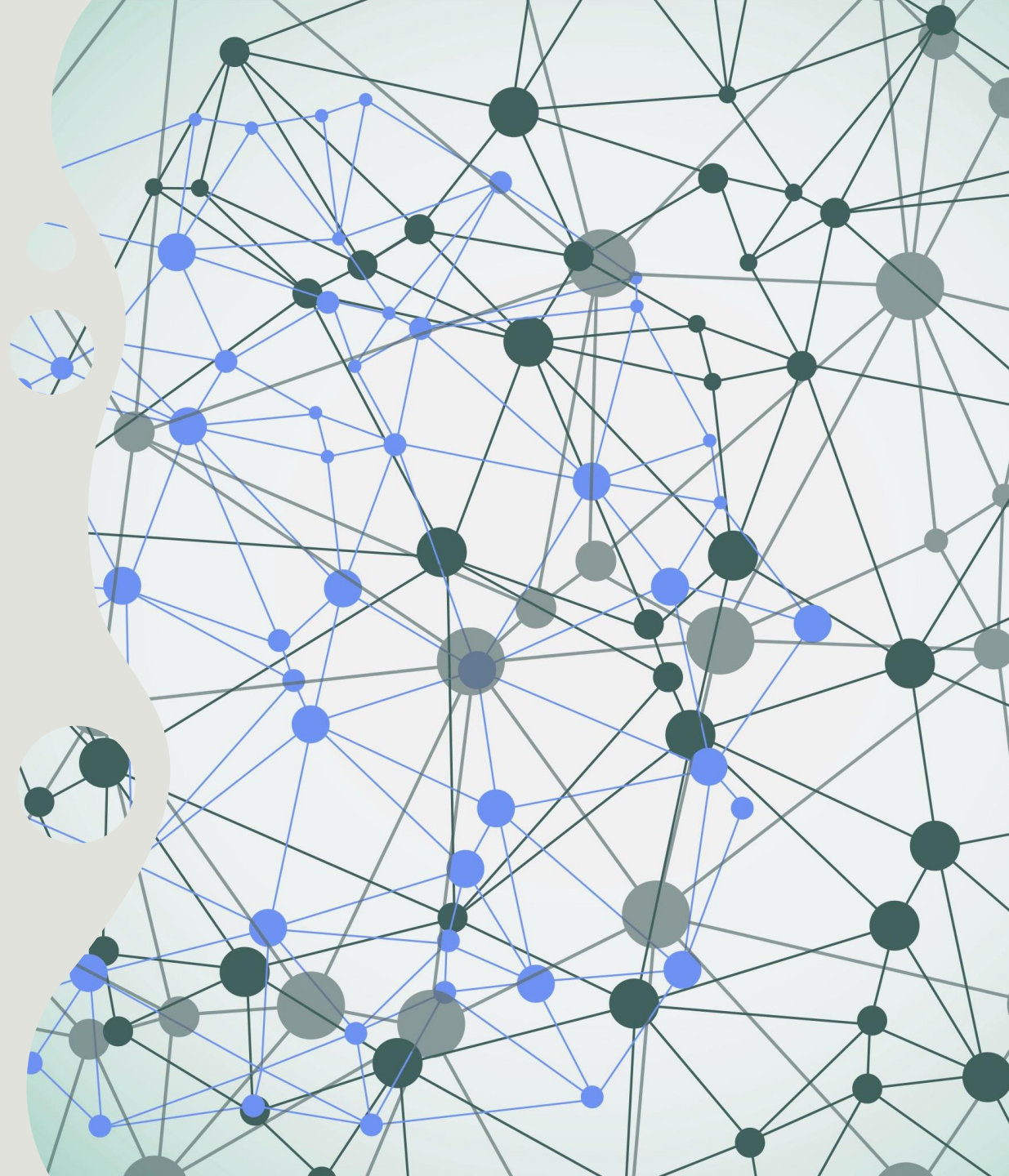


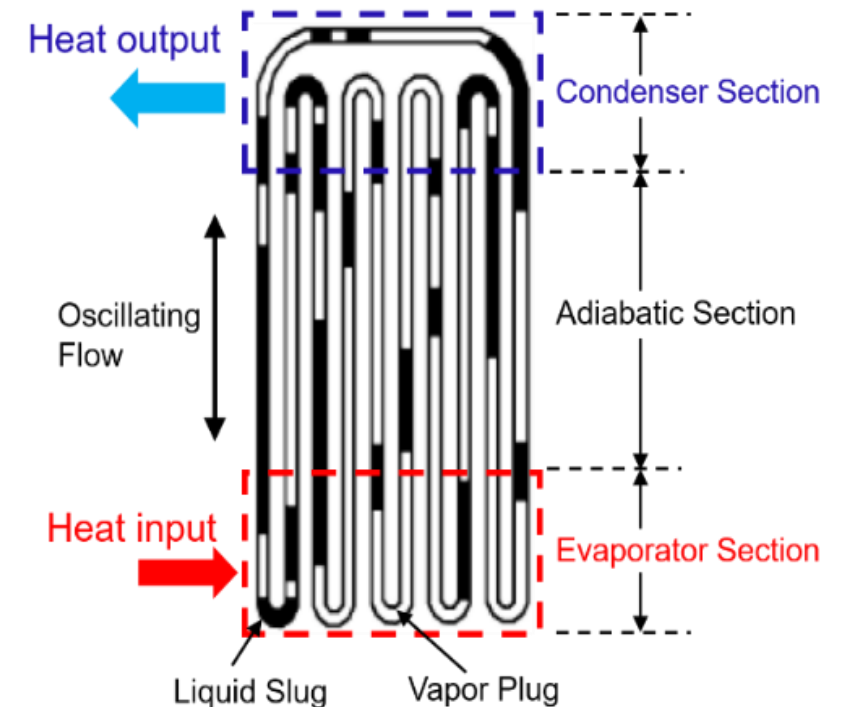
Research Thrust-1: Additively Manufactured Systems for Space Applications

Sub-project 2: Investigating Thermo-Fluid
Mechanism in Oscillating Heat Pipes



Statement of R&D Problem

An Oscillating Heat Pipe (OHP) is a passive and wickless device that has been identified as a potential TCS to overcome the limitations of conventional heat pipes. For an OHP (Fig. 3), start-up is primarily accomplished through nucleate boiling heat transfer within the evaporator. However, the OHP's design parameters, e.g., tube size, tube length, number of turns, etc., impact pressure drops (ΔP) in OHP's mini-channels. An increased ΔP is undesirable since the two-phase fluid oscillations can lose momentum due to frictional losses and this can expedite dry-out.



Schematic of an OHP.

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