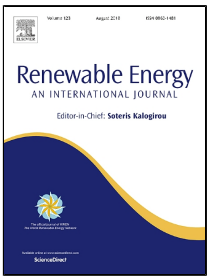
Accepted Manuscript



Quasi-Steady State Moving Boundary Reduced Order Model of Two-Phase Flow for ORC Refrigerant in Solar-Thermal Heat Exchanger

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Graphical Abstract

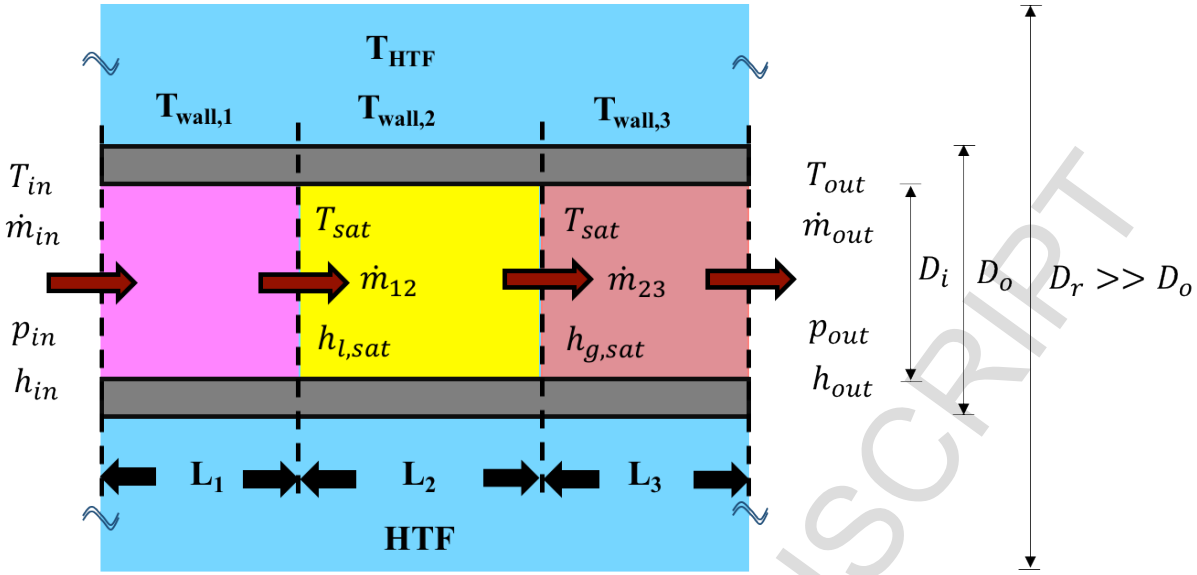

Figure shows the schematic diagram of the tube placed in the thermic oil reservoir inside the heat-exchanger, that carries R134a as the working fluid (From left to right, the colored zones represent (i) sub-cooled region, (ii) two-phase flow region and (iii) superheated region, respectively). A simplified quasi-steady state reduced order model is utilized to investigate moving boundary characteristics in a narrow tube of heat exchanger that carries organic refrigerant as working fluid in the medium solar thermal applications (~ 200 °C).