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C2Po1D-04: Numerical simulation of gas-liquid two-phase flow in four-turn helium-based pulsating heat pipe

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Abstract：In order to investigate the heat transfer mechanism of helium-based pulsating heat pipe, a two-dimensional numerical model of a four-turn helium-based pulsating heat pipe was developed. The model was numerically solved based on the Volume of Fluid (VOF) method, and the initial state and operating state of the helium-based pulsating heat pipe were simulated. The initial state is a saturated static state with alternate distribution of vapor plug and liquid slug. The running state is the pulsating flow with changing direction, and the flow type is the plug flow. The flow and heat transfer characteristics of the helium-based pulsating heat pipe were analyzed and compared with the actual experimental results.

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