

EXPERIMENTAL INVESTIGATIONS ON FLOW BOILING INSTABILITIES IN MINI- AND MICROCHANNELS – SERB



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FLOW BOILING IN MINIATURE CHANNELS

- ❖ High surface area to volume ratio
- ❖ Smaller size, less weight and low inventory
- ❖ Better heat transfer

CHALLENGES

- ❖ Instabilities, flow reversal
- ❖ Poorly understood dynamics
- ❖ Manufacturing challenges

APPLICATIONS

- ❖ Thermal management of high power semiconductor devices, fuel cells, laser systems
- ❖ Cooling of electronic devices
- ❖ Automotive, aviation, petroleum industries
- ❖ Server Farms, HPC cluster
- ❖ HVAC systems
- ❖ Solar energy systems

OBJECTIVES

- ❖ Experimental study of the dynamic behaviour of flow boiling in mini- and microchannels
- ❖ Characterization of instabilities occurring during flow boiling in mini- and microchannels
- ❖ To study the effect of channel dimensions on the instability type, frequency, and severity
- ❖ To study the effect of the system parameters on the instability characteristics



Flow →

