# Preliminary Results for Flow Boiling Heat Transfer of R1233zd in Microchannels

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**Abstract:** The paper reports preliminary measurement results for flow boiling heat transfer of refrigerant R1233zd in parallel horizontal microchannels. The aluminum test section consists of two blocks and has 10 parallel channels with 1.0 mm in width, 1.5 mm in height and 440 mm in length. Five small thermocouple holes with diameter 0.6 mm and depth 20 mm were drilled at 10 locations along the channel on the two aluminum blocks, respectively. Local heat flux and channel surface temperature along the channel were obtained using the inverse heat conduction method [1] based on temperatures accurately measured by 100 thermocouples. Local saturation temperatures were obtained by assuming linear pressure distribution over the two-phase flow region along the channel. Experiments were conducted under different conditions. The refrigerant mass flow rate varied from 100 kg/m$^2$s to 500 kg/ m$^2$s. The heating water mass flow rate varied from 200 ml/min to 1300 ml/min. The heating water inlet temperature varied from 40℃ to 80℃. Preliminary results are presented and discussed.

## Reference

1. Yu, G. X., Sun, J., Wang, H. S., Wen, P. H., Rose, J. W. (2014). Meshless inverse method to determine temperature and heat flux at boundaries for 2D steady-state heat conduction problems. *Experimental. Thermal Fluid Science, 52,* 156-163.