

## Experimental investigation of subcooled flow boiling of R245fa in a narrow horizontal annular duct

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**Abstract** - Subcooled flow boiling in a horizontal annular test section was investigated in a temperature-controlled experimental setup. The annular test section is installed as a part of the laboratory THELMA (Thermal Hydraulics experimental Laboratory for Multiphase Applications) built at Reactor Engineering Division of Jožef Stefan Institute. The unique characteristics of the temperature-controlled heating of the inner tube, in principle allow for a wide range of measurements, from subcooled boiling to the critical heat flux and above into the unstable film boiling regime. Transparent outer tube and a high-speed camera allow for visual investigation of two-phase boiling structures. In this study, first measurements of heat fluxes and visualization of flow boiling of refrigerant R245fa in horizontal annular configuration are presented and discussed.

**Keywords:** Subcooled flow boiling, horizontal annular duct, R245fa, visualization.