



Objective:

The aim of this work is to prepare and conduct a series of experiments to evaluate the heat transfer performance of two high-temperature potassium heat pipes. The data collected from these tests will then be thoroughly analysed and interpreted.

Background:

As part of the "MISHA – Passive Cooling of Innovative Micro Nuclear Reactors" project, this research focuses on assessing the heat transfer capabilities of high-temperature potassium heat pipes. Several heat pipe prototypes have been assembled and are to be tested under varying experimental conditions, including different inclinations and heating power inputs.

Following the experiments, all collected data must be carefully analysed and interpreted.

Approach:

- Literature review (topics include: contact angle, effective pore radius, capillarity, molten metals).
- Planning and preparation of experiments using the existing experimental setup.
- Execution of experimental procedures.
- Comprehensive analysis of experimental data.
- Preparation of a written report and oral presentation in the IKE student seminar.

Requirements:

- Strong motivation for hands-on experimental work.
- Working knowledge of MATLAB, Python and Labview.
- Excellent command of English.

Start: from 01.08.2025 or later

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Fig. 1: Example of an experimental setup for high temperature heat pipe performance measurement.