

The **Institute of Advanced Optical Technologies - Thermophysical Properties (AOT-TP)**  
offers a position as

## **Research Assistant (m/f/d) with the perspective of a doctorate**

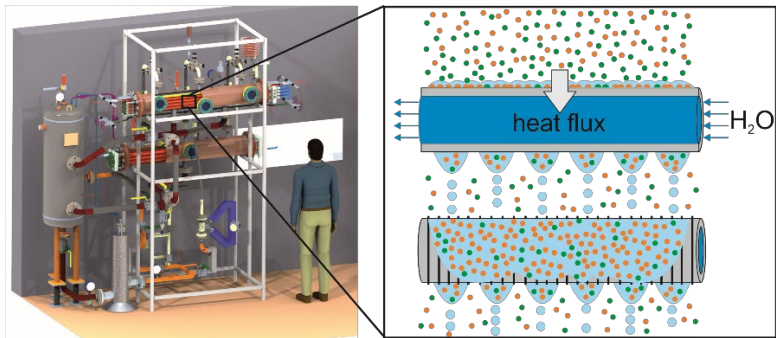
for a research project with the tentative title

### **Modeling of heat transfer during mixture condensation**

In the course of the increasingly noticeable climate change and the accompanying political restrictions on the emission of greenhouse gases, it is the task of research to develop ways of reducing the emission of gases that are harmful to the climate. In addition to reducing CO<sub>2</sub> emissions, it is also necessary to replace conventional refrigerants with high global warming potential (GWP) with climate-friendly refrigerants with appropriate thermophysical properties. Due to their low GWP, hydrocarbons and hydrocarbon blends are future-oriented natural refrigerants, where the use of mixtures has some decisive advantages. For example, they can often be used as so-called "drop-in" solutions in systems where the previously used refrigerant has been banned.

Since the condensation behavior of hydrocarbon mixtures on smooth or finned individual tubes and tube bundles has not yet been sufficiently investigated, the heat transfer during mixture condensation is studied at AOT-TP in cooperation with Wieland-Werke AG in a research project funded by the Bavarian Research Foundation.

In addition to the experimental determination, the heat transfer from the condensing binary refrigerant mixture to the tube surface will also be theoretically modeled in this project. Based on measurement results, established models will be checked and compared. Based on this, existing models



for the heat transfer coefficient on the outside of the condensation tube will be further developed considering influences such as subcooling, surface structure and material composition of the tubes, as well as the thermophysical properties of the refrigerants.

To support the work within the described research topic, we are looking for a graduated researcher with interests and competences in the fields of thermal engineering, thermophysical properties, and programming. We offer an open, interdisciplinary, and international working environment with excellent potential for scientific and personal development.

**Start:** as soon as possible

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