Friedrich-Alexander-Universität
Technische Fakultät

AOT-TP

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

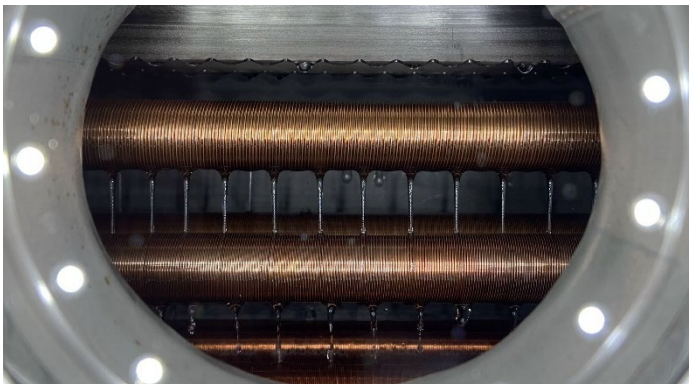
Position as Research Assistant (m/f/d) with the perspective of a doctorate

for a research project with the tentative title

Condensation of binary hydrocarbon mixtures on smooth and finned tubes and in tube bundles

During 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 to reduce the emission of gases that are harmful to the climate. In addition to reducing CO_2 emissions, it is also necessary to replace conventional refrigerants with high GWP (Global Warming Potential) values with non-climate-damaging refrigerants with appropriate thermophysical properties. Due to their low GWP values, hydrocarbons and hydrocarbon blends are future-oriented, and the use of the latter 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 zeotropic hydrocarbon mixtures on smooth or finned tubes and in tube bundles has not yet been sufficiently investigated, the heat transfer during condensation is studied at AOT-TP in a research project funded by the German Research Foundation. In addition to the experimental determination, the heat transfer from the gaseous binary refrigerant mixture to the tube surface will also be theoretically modeled in this project. Based on measurement results, established models will first be validated and, if necessary, further developed to describe influences such as subcooling, surface characteristics and material composition of the tubes, as well as the thermophysical properties of the refrigerants on the heat transfer coefficient.



View into the condenser during condensation experiments on finned tubes

To support the work on the aforementioned research topic, we are seeking a recent graduate with an interest and experience in the fields of thermal engineering, thermophysical properties, and programming. We offer an open, multidisciplinary and international working environment with excellent opportunities for scientific and personal growth. Proficiency in English and German is required.

Start: as soon as possible

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