

Description for student job

Gas- und Wärme-Institut Essen e.V. (GWI) is a well-recognized research institute with a reputation reaching far beyond its home region of North Rhine Westphalia. Associated with the German gas industry, it was founded in 1937 under the auspices of the United Institutes of Thermal Technology (Vereinigten Institute für Wärmetechnik). In its capacity as an Institute for the gas sector, research work with a strong practical orientation is carried out to enable gas to successfully compete with other forms of energy.

To reduce the total amount of energy generation (and therefore, the amount of pollution), governments have invested heavily into energy efficiency research especially in the major power consuming sector of residential buildings. The combined heat and power (CHP) technologies become more important in the residential sector as decentralized small-scale heat and power generation appliances. The current scientific researches (national and EU projects) at GWI deal with efficient energy supply in residential buildings. The offered scientific student job focuses on evaluation and simulations (using the dynamic modeling language Modelica) of building energy system. For this purpose, an existing model of GWI demonstration house can be used and further developed. Furthermore, the necessary parameters influencing the energy consumption of buildings (irradiation, air exchange, internal gains and loads, isolation...) need to be studied.

The object of this work is to study the impact of each parameter on the energy demand and the correlation between each parameter due sensitivity analyses. The local and global analyses need to be investigated. A pre-work at GWI with Modelica/Simulink has begun. The existing models; house, combined heat and power system and thermal storage; need to be coupled with an electrical storage. Finally, a comparison of simulation results with the existing measurements in field's trial and GWI laboratory test should take place.

For this scientific student work, GWI offers you very interesting and varied topics for master theses in an innovative environment and a highly motivated team.

We are looking for a student willing to carry out above-mentioned theme and to write a master's thesis (f/m)

Your Profile:

- You are studying Mechanical Engineering, Environmental Engineering, Chemical Engineering, Energy Science, Civil Engineering (building physics) or similar
- You are good in programming (e.g. Modelica)
- You have relevant technical knowledge in energy and building technology
- You have a sound knowledge of MS Office applications
- You can communicate in German and English

Please indicate in your application on the reference number **2018-BGT-H-06**.

Haben wir Ihr Interesse geweckt? Dann senden Sie uns Ihre aussagekräftige Bewerbung in digitaler Form an:

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