



Bachelorthesis No.: LSS-Bxx/xx

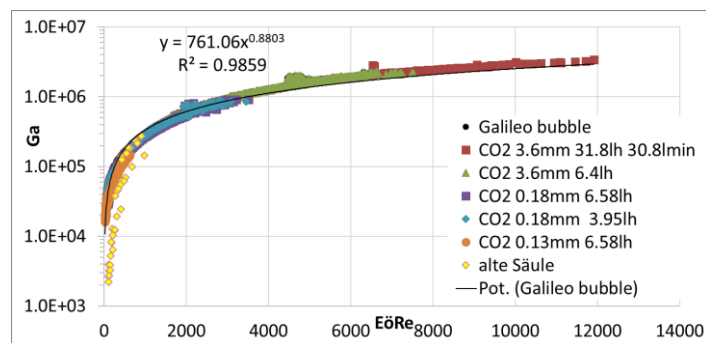
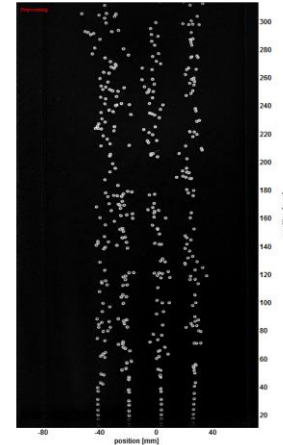
Description of the Bachelorthesis of: xxx

**TITLE: Literature analysis to determine the dependency between bubble diameter and bubble velocity - dimensionless Clift diagram**

Description:

The transition of reactants from a gas phase to a liquid phase plays a major role in process engineering. In the bubble columns used for these processes, a correlation between bubble size, shape and velocity exists, which is decisive for the mass transfer. In order to be able to calculate such processes using numerical simulation methods, empirically obtained correlations between bubble geometry/behaviour and fluid properties are required.

In this work, measured bubble diameters and velocities as well as the material properties used will first be collected in a literature analysis. A dimensionless representation of the data will then be used to work out laws and correlations between bubble size and velocity. The dimensionless Reynolds, Galilei, Eötvös and Morton numbers will be used for that.



The thesis will consist of the following tasks:

- Evaluation of existing and search for new literature data
- Digitisation of the data and calculation of the dimensionless numbers using Excel or Matlab
- Presentation of the data using dimensionless numbers and regression of the curves obtained in order to recognise correlations
- Establishment and improvement of empirical correlations
- Evaluation and documentation of the results

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Start: immediately