Aktuelle ausgeschriebene Arbeiten

Allgemeine Infos

Masterarbeiten/KÜs können auch zu einer Bachelorarbeit abgewandelt werden

Bei Interesse an einem Themengebiet gerne auch die Institute/Arbeitsgruppen direkt anschreiben

Auf der jeweiligen Institutshomepage gibt es eine große Auswahl an Arbeiten

CEET/ICVT - Open (Research) Topics

BA / MA

- New - **January 2023**: Lactic acid isolation from sour whey
- New - **January 2023**: Reactive extraction of lactic acid – influence of salts, proteins and mineral acids on the extraction efficiency and crud formation
- New - **November 2022**: Construction of electric control box ECB & Sensor implementation
- New - **November 2022**: UV-Vis spectrophotometric analysis of tomato plant extracts
- New - **October 2022**: Synthesis and characterisation of DES
- **September 2022**: ModKap - Thermodynamically consistent modelling of solvent absorption in polymer encapsulations
- **July 2022**: Process engineering challenges in the manufacturing of polymer electrolyte fuel cells (PEFCs)
- **July 2022**: Automation of a test rig for the characterization of polymer electrolyte fuel cells (PEFCs)
- **July 2022**: Bestimmung des Einflusses der Eigenschaften von Anionen-austauschmembranen auf die Leistung
- **July 2022**: Application of Machine Learning Methods to the Modeling of Fuel Cells and Chemical Reactors
- **April 2022**: Theoretical and Experimental Investigation of a PEM Wa-ter Electrolysis Cell
- **February 2022**: Assessment of activity coefficient models
- **January 2022**: Interfacial Properties at elevated Pressure

- New - **January 2023**: Lactic acid isolation from sour whey
- New - **January 2023**: Reactive extraction of lactic acid – influence of salts, proteins and mineral acids on the extraction efficiency and crud formation

- New - **November 2022**: UV-Vis spectrophotometric analysis of tomato plant extracts
- New - **October 2022**: Oxidation of lignin and extraction of value added products
- New - **October 2022**: Fraktionierung von Kraft Schwarzlauge
- **September 2022**: ModKap - Thermodynamically consistent modelling of solvent absorption in polymer encapsulations
- **July 2022**: Application of Machine Learning Methods to the Modeling of Fuel Cells and Chemical Reactors
- **June 2022**: Untersuchungen zur Wasserstoffqualität im RESC Prozess
- **June 2022**: Thermal CO2 desorption
- **April 2022**: Theoretical and Experimental Investigation of a PEM Water Electrolysis Cell
- **February 2022**: Experimental study on process intensification for chemical looping hydrogen processes by advanced inert support materials
- **February 2022**: Simplifying chemical degradation analysis in fuel cells with optical spectroscopy
- **February 2022**: Design of Experiment for test parameter optimisation for Polymer Electrolyte Membrane Fuel Cells
- **February 2022**: Assessment of activity coefficient models
- **January 2022**: Techno economic analysis on hydrogen production from biomass
- **January 2022**: Interfacial Properties at elevated Pressure

BPTI Open Student Project and Theses (tugraz.at)

Currently open Master theses

1. Paper hydrophobisation and coating
   (Heinzel Paper Pöls)
2. White Liquor oxidation
   (Mondi Ruzomberok)
3. Nanobubble applications in chemical engineering
   (Messer Group)
4. Pulp fiber flexibilization by sulphonation or oxidation
   (Mondi Swieczi)

IPPT - Studienarbeiten (tugraz.at)

„Continuous Synthesis & Processes“

Typical Tasks for Student Theses

- **Development and optimization of continuous processes**
- **Design and printing of 3D printed reactors and crystallizers**
- **Characterization of 3D printed equipment by residence time distribution measurements**
- **Preparation, characterization and application of solid catalysts**
- **Being part of international projects with worldleading pharmaceutical companies**

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„Pharmaceutical Engineering and Particle Technology“

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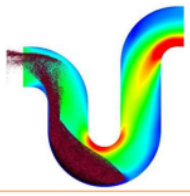
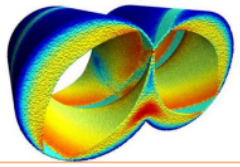
In collaboration with RCPE Paid Master's thesis are offered

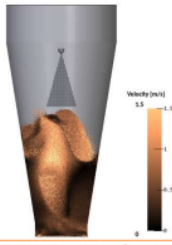
1. Powder Simulation with Euler Granular Model and Discrete Element Method (DA 163 Martina Trogrlic)
2. Solid Phase Peptide Synthesis (DA 161 Joahn Remmelgas)
3. Next-Level particle simulations (DA154 Hermann Kureck)
4. Simulation of particle-fluid interaction using an immersed boundary method: a validation study (DA151 Maryam Askarashahi)
5. Simulation of Wet Particles' Collisions (DA 146 Maryam Askarashahi)
6. Evaluation of Spray Models in Coupled Simulations (DA 141 Thomas Forgber)
7. Investigation of the Impact of Fluid Viscosity on the Flow Field and Mixing in Twin Screw Extruders (DA137 Josip Matic)



Pneumatic particle transport



SPH simulation of extruder



CFD-DEM Particle Coater

thesis code

contact person

Contact
Sandra Sünkel, Head of Human Resources
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+43 316 873 30904
sandra.suenkel@rcpe.at

rcpe.at/en/students

Looking forward to your applications!

„Simulation Science“

Typical Tasks for Thesis Work

- **Post-processing and plotting simulation/experimental results using Matlab/octave and ParaView**
- **Prepare CAD data (e.g., using SolidWorks or FreeCAD) as simulation and 3D printer input**
- **Analytical and semi-analytical calculations using Matlab/octave**
- **Run and monitor simulations using OpenFOAM® and/or LIGGGHTS®**
- **Design, assemble, and/or run experiments with (partially existing) setups**

Contact: Stefan Radl
radl@tugraz.at, +43 680 12 22 168

„Mechanical Process Engineering“

Typical Tasks & Execution of Thesis Work

Topics are related to ongoing research projects and they always contain experimental work. Please ask what is on stake now and in the near future, once you feel ready for it.

Execution:

1. **Jointly preparing 1-page project description – background problem statement, goal, tasks, methods and time line**
2. **Literature survey**
3. **Experimental work, i.e., develop experimental plan, execute experiments and analyses, evaluate results**
4. **Thesis writing**

Please note: After each meeting a follow-up meeting is scheduled.

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Typical Tasks & Execution of Thesis Work

Several opportunities are available for thesis research within ongoing cutting edge industrial research projects on drug formulation, nanotechnology, 3D printing, drug stability etc.

Contact: Amrit Paudel,
amrit.paudel@tugraz.at, +43 6763486312

Expected tasks in the project:

1. **Literature research**
2. **Experimental works: formulation and process design, screening, characterization**
3. **Data analysis and modeling, interpretation and presentation**
4. **Periodic update of progress via (e-) meeting and presentation**
5. **Thesis writing**
6. **Participation in writing research publication (optional)**