research center pharmaceutical engineering

The Research Center Pharmaceutical Engineering (RCPE) is an interdisciplinary research institute in the area of pharmaceutical process- and product-development in Graz, Austria. Our goal is to establish technology to transform current product and processes development approaches in the pharmaceutical and diagnostics industries into a science-based endeavor together with our partners.

PAID MASTER'S THESIS:

Influence of Inter-Particle Cohesion on Mixing Performance: A DEM Validation Case

Ref.Nr. 115

To dedicated students who are interested in computer simulations in the pharmaceutical field (i.e. students of chemical engineering, pharmaceutical engineering, biomedical engineering, computer science, or related disciplines), we offer an opportunity to write a paid Master's thesis.

OBJECTIVE:

Discrete Element Method (DEM) simulations allow an in-depth analysis of powder flow in pharmaceutical processing equipment that is unparalleled by experimental methods. While it is easy to gain qualitative results (and nice pictures) from DEM simulations, quantitative results require a careful calibration of the particle-particle contact forces.
The flowability of pharmaceutical powders depends not only on intrinsic properties. For example, hydrophilic powders tend to be more cohesive in environments with high air humidity. The aim is to study the influence of cohesion on particle level, on small scale powder characterization experiments, and on a larger scale powder mixing process with experimental confirmation of the predictions.

WITHIN THE FRAMEWORK OF THIS MASTER'S THESIS WE OFFER THE FOLLOWING:

- Extensive participation in a top-level and industrially relevant research project in an international environment
- Supervised training in the task
- Assistance of experienced staff with the implementation of innovative ideas
- Access to highly modern infrastructure on campus of Graz University of Technology
- Assistance with the publication of results
- Adequate compensation and opportunities for personal and professional development

FINANCING: Compensation on the basis of a service contract

If you are interested in writing your thesis at the interface between university research and industry/business and to contribute to the optimization of product and process development in the pharmaceutical industry, please contact us indicating the reference number.

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