

## RCPE

### Research Center Pharmaceutical Engineering GmbH

#### Programme: COMET – Competence Centers for Excellent Technologies

#### Programme line: K1-Centres

### One Step Closer to Reality – RCPE, AVL and PSE intensify cooperation

Ever since its inception, the K1 Competence Center Research Center Pharmaceutical Engineering GmbH (RCPE) emphasizes regional and international collaboration. This fundamental value is underlined by the most recent agreement to intensify the cooperation with Styrian world market leader AVL List GmbH and the British Process Systems Enterprise Ltd (PSE). While both companies have been working with the RCPE individually, the announcement marks the exciting beginning of merged efforts and bundling of competences, creating a true power horse and single-point service for process optimization across industries and national borders.

The triumph of simulation technology is unmistakably obvious as correlating computer programs can be found in almost any industry, branch or company. RCPE and AVL prove with their integrated solution for Particle-Fluid simulations that successful and powerful software must not necessarily be developed in the Silicon Valley. The core of the program consists of fluid dynamics software AVL-Fire and XPS, a simulation tool for solid particles developed by RCPE. In order to ensure seamless compatibility and integration, the tools have been co-developed. Both are complemented by PSE, world leading supplier for Advanced Process Modelling Software and service provider for the process industry who already operate a Center of Excellence in cooperation with RCPE. The company from London injects exceptional know how of mechanistic modelling and provides invaluable experience in software distribution.

time, other common tools reach their limits at a fraction of that amount. Therefore, the utilization of XPS leads to minimizing the implications of a trial & error approach. Thanks to the simulation, variables such as particle size, chemical constitution or temperature can be tested prior to manufacturing a prototype, accelerating time intensive development processes while decreasing overall costs. Pairing with AVL-Fire allows for the simulation of the interaction between solid particles and fluids, such as liquids or even air. A variety of companies from the automobile, food and pharmaceutical industries already relies on the combined solution of XPS and AVL-Fire. "Our aspiration has always been reality." states Massimo Bresciani, Director of Scientific Operations & Business Development of RCPE, "Essentially, simulations can only realize their full potential when particles and processes are depicted as close to reality as possible. Achieving this state of detail, makes us very proud."



#### It's the amount that matters

The outstanding performance feature of XPS is the amount of particles that can be simulated. With its unique program architecture XPS uses the CPU and GPU for the depiction of the behavior and transport of more than 40 million particles without additional computation



Fig. 1: Logo of XPS © RCPE



**We have not reached the boundaries of performance**

Both programs and therefore the integrated solution undergo constant development to advance speed and performance, so even more industries and branches can benefit from simulation in the near future. Particle based steps can be found in approximately 80% of all chemical processes which offer potential for optimization and improvement. "With the cooperation with AVL and PSE, we can offer a modern tool set for process and in return product optimization to our

customers, bracing them for any future challenges." states Dr. Thomas Klein, Business Director of RCPE.



Fig. 2: XPS in use @ Lichtmeister Photography

**Contact and information**  
**Kontakt und Informationen**

K1-Zentrum/RCPE

Research Center Pharmaceutical Engineering GmbH  
Inffeldgasse 13, 8010 Graz  
T +43 (0) 316 873 30940  
E [thomas.klein@rcpe.at](mailto:thomas.klein@rcpe.at), [www.rcpe.at](http://www.rcpe.at)

**Project coordinator**  
Dr. Thomas Klein

**Project partners**

Organisation	Country
AVL List GmbH	Austria
Process Systems Enterprise Ltd.	United Kingdom

**Further information on COMET – Competence Centers for Excellent Technologies:** [www.ffg.at/comet](http://www.ffg.at/comet)

This success story was provided by the consortium leader/centre management for the purpose of being published on the FFG website. FFG does not take responsibility for the accuracy, completeness and the currentness of the information stated.