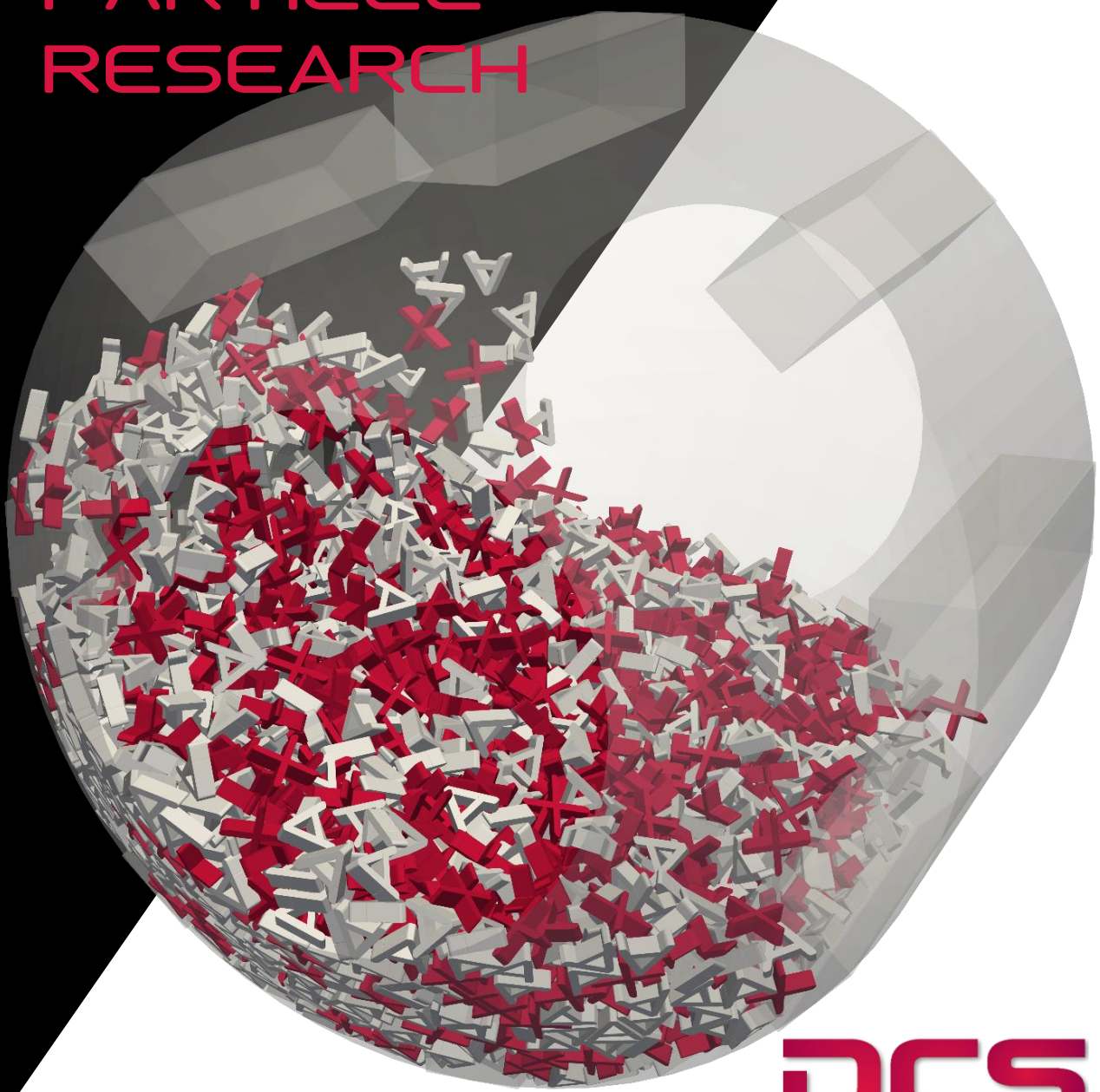
ASPHERIX
ACADEMIC

POWER YOUR PARTICLE RESEARCH



DCS
COMPUTING

ASPHERIX

FEATURE OVERVIEW

The cutting-edge of DEM simulation

- In Fall 2019 DCS added a new product to its portfolio: Aspherix®.
- Aspherix® is available under commercial license and combines DCS's learnings from previous developments and a large set of new, cutting edge features.

Aspherix® consists of:

Strong simulation engine for DEM

Easy to use GUI for DEM

GUI workflow for coupled CFD-DEM simulations

Aspherix® runs on:

Desktop machines

Clusters

Clouds

Why Aspherix® is better than open-source?

API-based model customization

Project-tailored development

Industrial-grade quality

Continuously tested for consistency

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> Our collaboration with DCS since 2008 has raised enormous synergies and has formed the core values of my research group. My research team and my teaching efforts greatly benefit from the interaction with DCS, as well as their simulation tools. Together with them, we will bring DEM to a new level!

Prof. Stefan Radl
Graz University of Technology

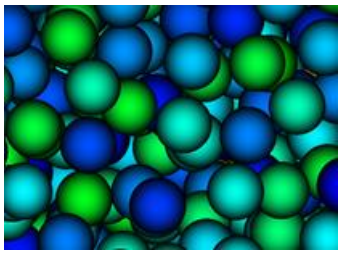
TU Graz

FEATURE OVERVIEW

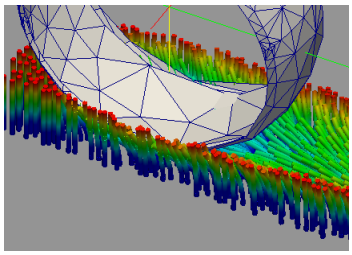
Different particle shapes

- Aspherix® supports a large variety of particle shapes.

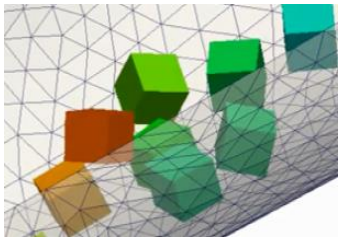
spheres



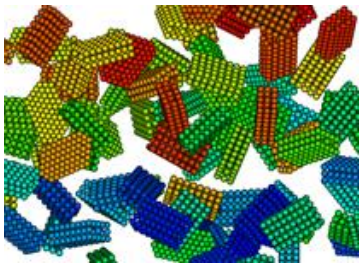
fibers



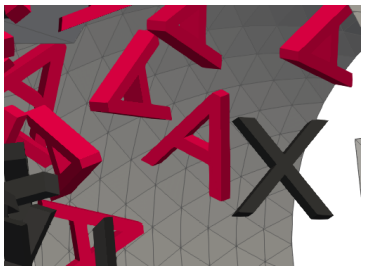
convex triangulated



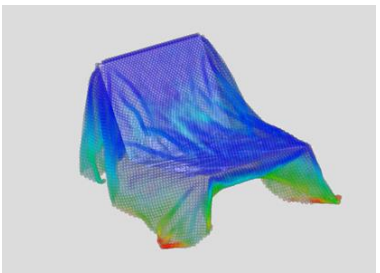
multi-spheres



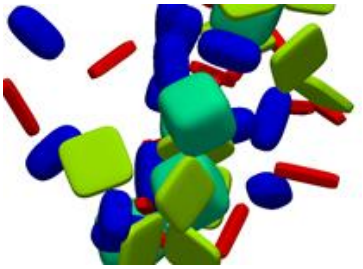
concave triangulated



soft



boxes, cylinders, ellipsoids



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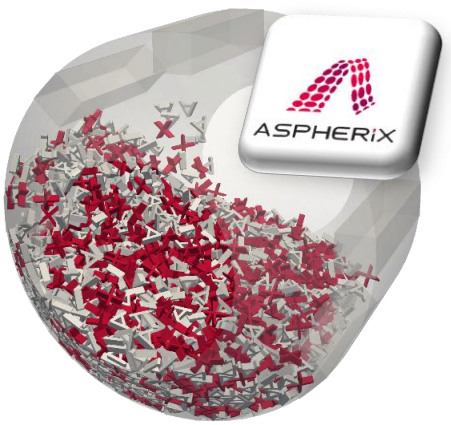
> An open source software is a powerful tool, unfortunately I didn't have the time to learn it from scratch. Aspherix was the ideal solution to this, allowing me to easily perform simulations with superquadric particles.

Dr Brayan Paredes Goyes
SIMAP

SIMaP



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OUR IMPACT ON RESEARCH

Horizon 2020 (EU)

- Involved in 8 projects (of which 6 ongoing)
- All projects with overall budget 4-8M€
- Number of involved partners: 67

The Austrian Research Promotion Agency (Austria)

- Involved in 8 projects (of which 1 ongoing)

Transnational projects

- Involved in 6 projects (of which 3 ongoing)
- typically projects with budget 0.5-1M€ and 2-3 partners

Collaboration with universities and research centers

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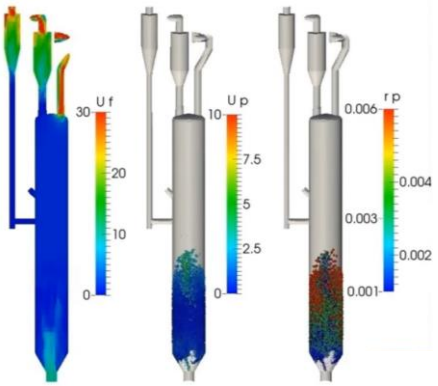
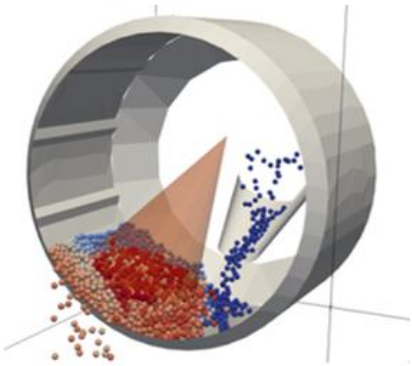
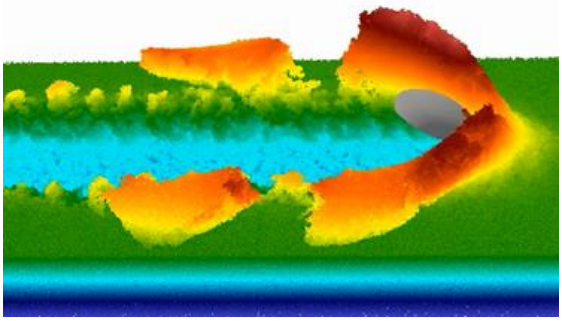
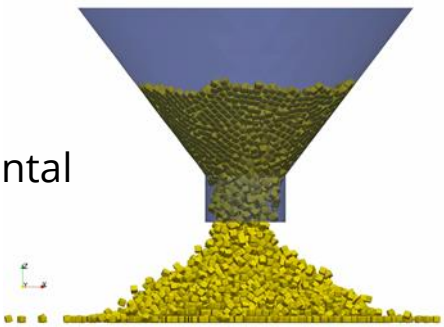
OUR IMPACT ON INDUSTRY

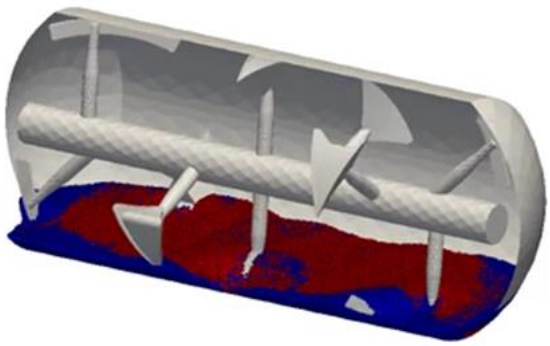
- Chemical
- Pharmaceutical
- Food products
- Geomechanics and mining
- Heavy machinery
- Metallurgy
- Environmental
- Plastic











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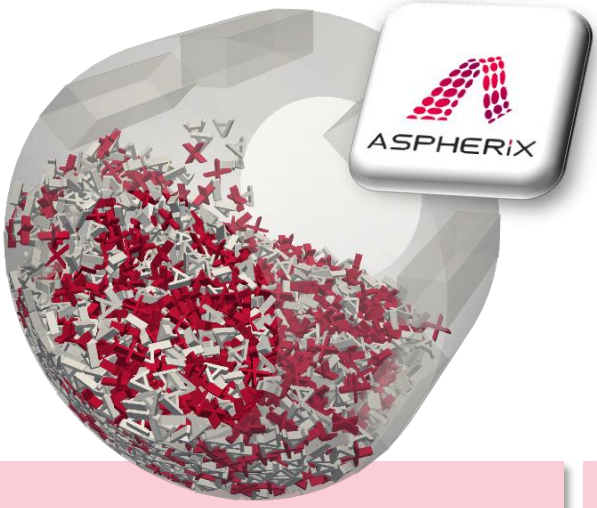
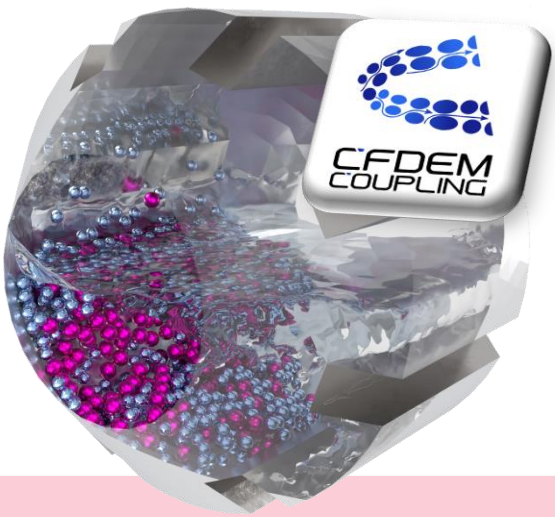
ASPHERIX® AND CFDEM®COUPLING

Coupled CFD-DEM simulations

- The particle-fluid interactions due to momentum (e.g., drag force), heat transfer and mass transfer can be resolved using CFDEM®coupling

- The latest versions of Aspherix® and CFDEM®coupling are fully compatible





Governing equations

- Newton's second law of motion
- Heat and electricity conduction

Main models

- Library of contact models
- Material properties models
- Particle breakage and attrition
- Spray coating
- 6DOF meshes
- 1-way CFD-DEM coupling

Governing equations

- Navier-Stokes equations
- Heat and scalar transport
- Chemical reactions

Main models

- Incompressible, compressible, multi-phase and Immersed Boundary Method (IBM) solvers
- Newtonian and non-Newtonian flow models
- 4-way CFD-DEM coupling

ASPHERIX

ASPHERIX® ACADEMIC

Are you a researcher looking for the right DEM software?

Aspherix® Academic is the licensing scheme for you!

- Full Aspherix® functionalities
- Project-tailored customization
- Competitive pricing
- The DCS team can support you in the joint application for publicly-funded research projects!

Contact us to request pricing

To request product information and the pricing for Aspherix® Academic, you can contact us via the web page:

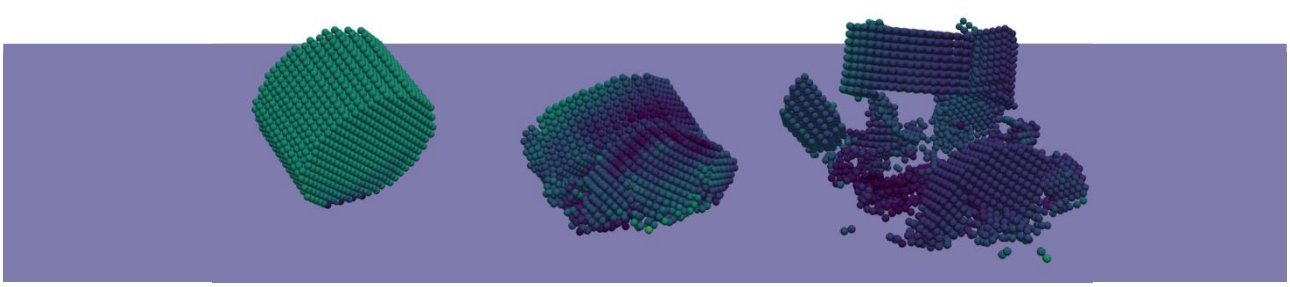
https://www.aspherix-dem.com/contact/

Your request should include:

1. Your name, affiliation and main contact for the quote
2. Field of research
3. Goals to be achieved with Aspherix® Academic

We look forward to hearing from you!

The DCS team



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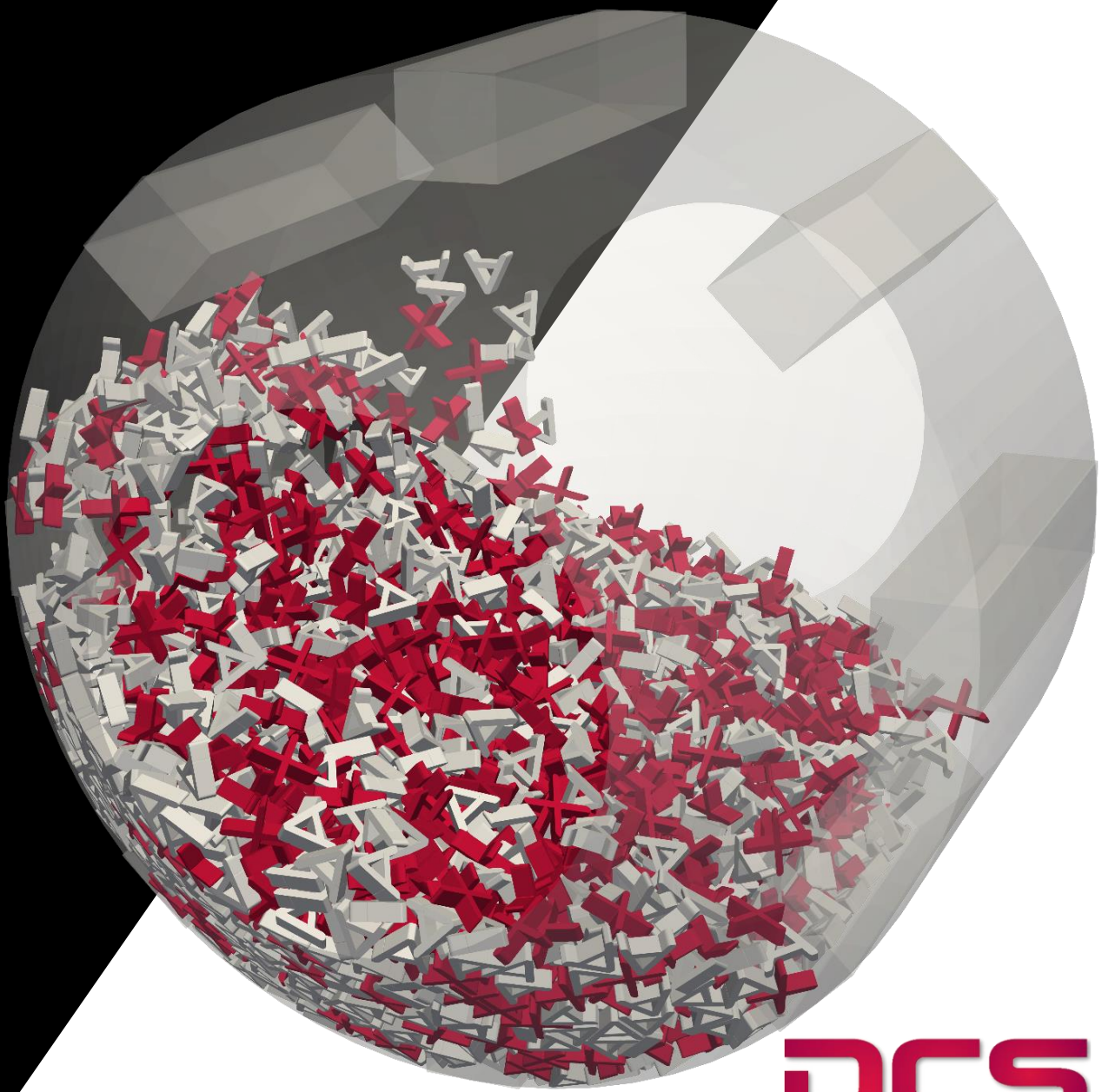

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