2021 ALTAIR STUDENT WEBINAR SERIES – ADVANCED SIMULATION

Moderator : Dr. Hossein SHAKOURZADEH

September 16th, 2021

Altair Student Webinar Series

Moderator Profile

- PhD from University of Technology of Compiègne in 1993 with jury's honors in "Computational methods for nonlinear behavior of slender structures in collapse"
- Lecture-Researcher at UTC then Prof.-Assistant at LdV Engineering School 1993-2000
- Mecalog software company 2000-2006 (Radioss)
- Altair France since 2006:
  - Collaborations in academic and educational programs
  - Collaborative research projects with both industry and universities involved
  - …

Hossein SHAKOURZADEH
Director Academic Relations & Research Projects- Altair France

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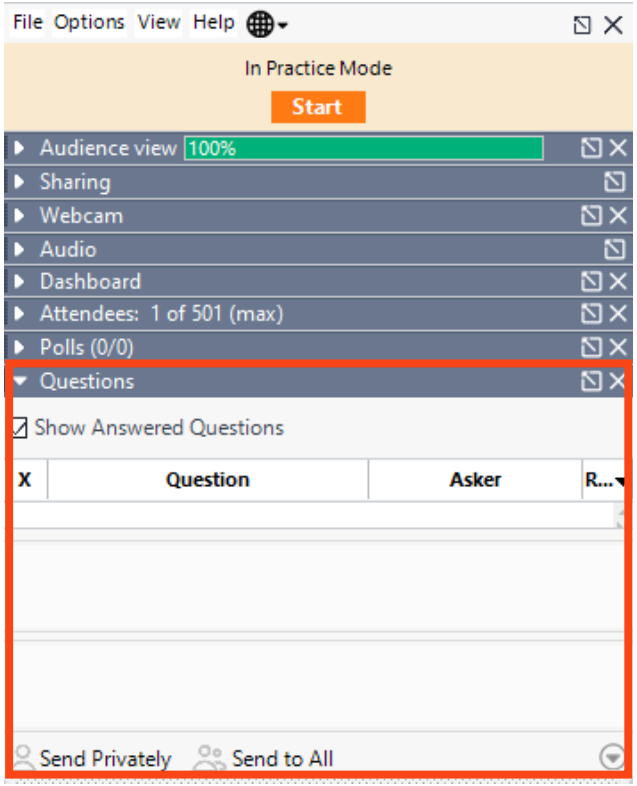
GoTo Webinar - Overview

About the Webinar Interface

- You can follow the Webinar in the GoTo Webinar environment
- Please note that you will be muted throughout the whole session
- To post questions, please use the „Question“ Tab of the webinar window – we will address your question in this window or live during the Q&A after each presentation
- The demo recordings and model files will be made available after the webinar.



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Agenda - Advanced Simulation

Sept 16th – EMEA & APAC Time (CEST)

Time CEST	Presenter	Company / Team	Topic
10.00 a.m. – 10.10 a.m.	**Hossein Shakourzadeh** Director Academic Relations & Research Projects-	**Altair France**	**Altair: Advanced Simulation**
10.10 a.m. – 10.30 a.m.	**Philipp Link, Rudolf Ring, Martin Molnar,** Engineering Students	**TU Vienna Racing team**	**Structural Analysis of major Formula Student racecar components at TU Wien Racing: Drivetrain, Wishbone, Sandwich Structure**
10.30 a.m. – 11.30 a.m.	**Cesar Barreto** Senior EDEM Engineer	**Altair UK**	**Introduction to Altair EDEM: Finding out more about simulation flow and best practice**
11.30 a.m. – 12.30 p.m.	**Pierre-Christophe Masson** Advanced Structures group leader	**Altair France**	**Introduction to Crash Analysis**
12.30 p.m.	**End of Session**		**End of Session**

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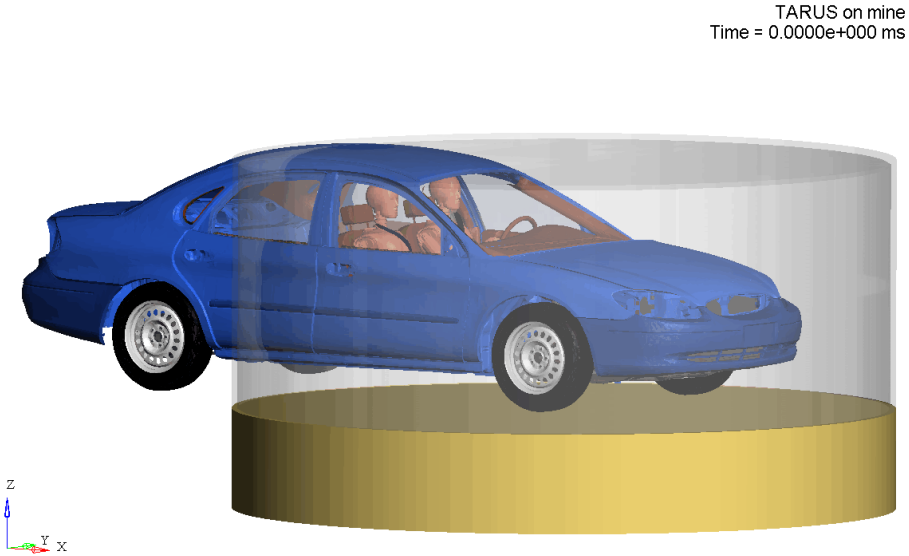
Advanced Simulation

- Nonlinear
- Time dependent
- Large deformation
- Complexe contacts problems
- CFD
- Multiphysics
- Material damage & rupture
- Fatigue
- Material transition phase
- Electromagntics
- ….



Under car explosion using Altair Radioss

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Students Webinar Series - Advanced Simulation

Sept 16, 17, 23, 24 EMEA & APAC
Time (CEST) 10:00 – 12:30

Date	Topic
September 16	1- Racing Car design Example 2- Particle Simulation with EDEM 3- Crash Analysis with Radioss
September 17	4- Evaluate External Aerodynamics 5- Finite Element Modelling
September 23	6- Structural Simulation and Optimization
September 24	7- Design Composite Structures with Simulation

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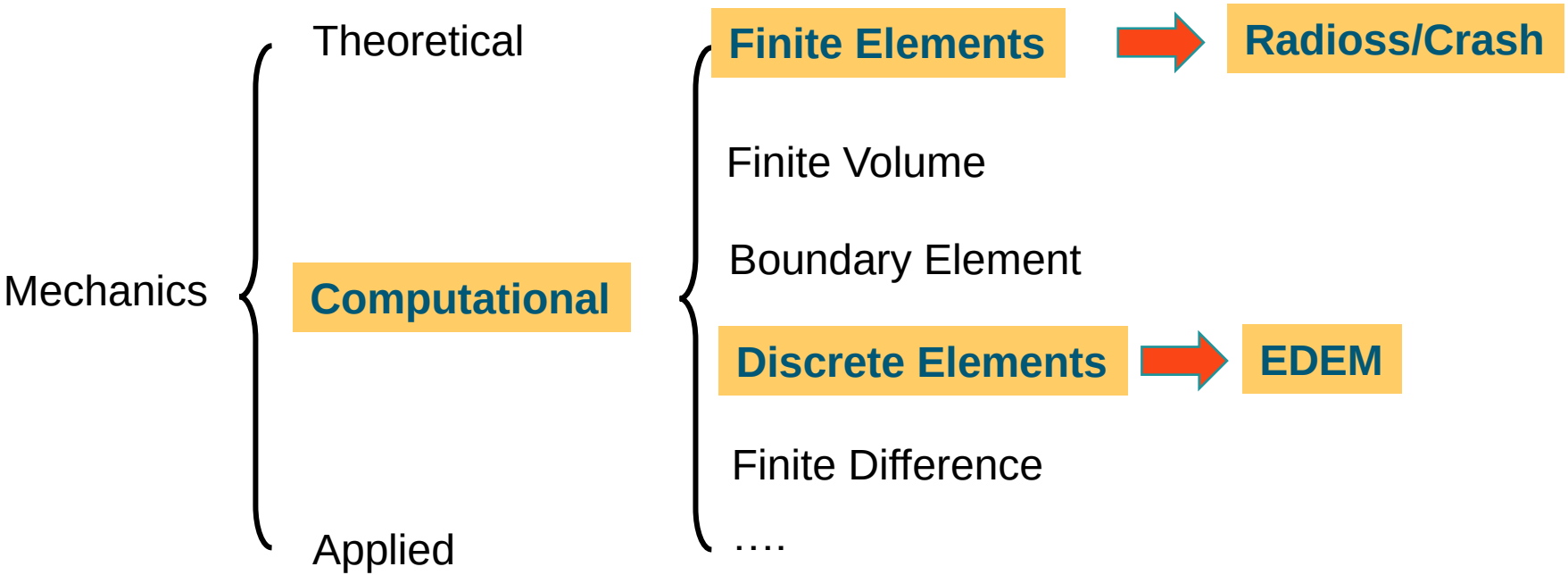
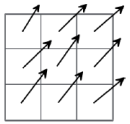
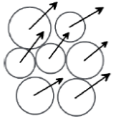
Overview



Overview

Radioss/Crash	EDEM/Granular
Assembled continuous parts 	 Discontinuous, granular media
Stress and strains through constitutive laws	Behavior of individual particles
Transient dynamic, highly deformed parts	Contact models for complex granular shapes
Can be coupled with FEA, CFD and MBD	Can be coupled with FEA, CFD and MBD

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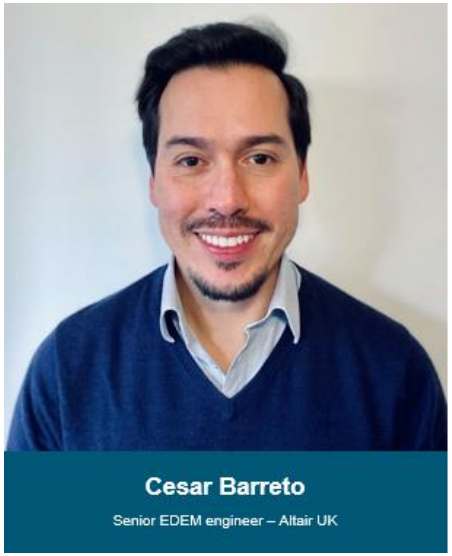
Radioss/Crash

Introduction to crash analysis Altair Radioss

EDEM/Granular



Introduction to Altair EDEM

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Application case

Structural Analysis of major Formula Student racecar components at TU Wien Racing: Drivetrain, Wishbone, Sandwich Structure

Student Team Presentation

TU Vienna Racing

1. Introduction (Philipp Link)
2. Drivetrain (Rudolf Ring)
3. Wishbone (Philipp Link)
4. Sandwich Structure (Martin Molnar)

PRESENTATION 2

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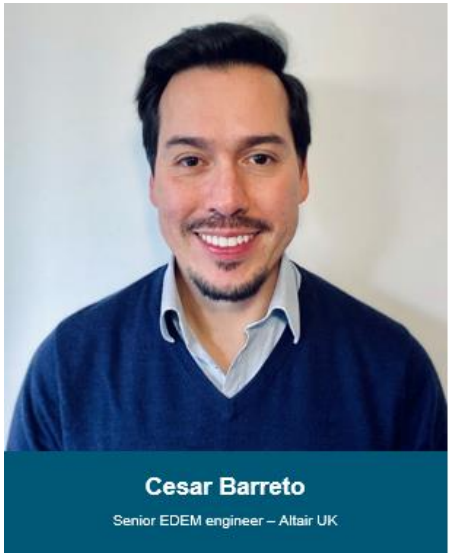
Particule simulation with Altair EDEM

Introduction to Altair EDEM: Finding out more about simulation flow and best practice



Altair offers a Discrete Element Method based solution which enables for efficient simulation of bulk and granular material.

Users across industries such as Process Manufacturing, Heavy Equipment, Mining & Metals and Research can take advantage of its capabilities.

The DEM solution allows users to track the accelerations, velocities and positions of particles that represent a material across a time range along with obtaining forces and contact behavior. Furthermore the materials' impact on the structure can also be considered for things such as wear and bending loads.

This solution can also be coupled to traditional FEA as well as Multi Body Dynamics soutions.

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PRESENTATION 3

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Altair Student Webinar Series

Speaker Profile

- Engineering degree from Ecole Centrale Marseille in 1999
- Master degree in Applied Mathematics in 1999 from Aix-Marseille University
- 2000 – 2007: Project Engineer & Project Manager at Mecalog Eurosim, France
- 2008 – 2012: Project Engineer & Project Manager at Altair, France
- 2013 – 2020: Senior Application Engineer & Technical Specialist at Altair, France
- Since 2021/06: Group Leader at Altair, Global Technical Team

Pierre-Christophe MASSON

GTT Advanced Structures group leader – Altair France

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