ALTAIR

2021 ALTAIR STUDENT WEBINAR SERIES
Darius Fadanelli Director of EDU Outreach USA

Altair Student Webinar Series 2021

Darius Fadanelli

- **Engineer's Degree** in Aerospace Engineering at University of Michigan, December 1989.

- Joined Altair in January 1990

- Director of HyperWorks support for USA 2000 - 2017.

  - Managed a team of 40+ engineers

- **Director of EDU Outreach for USA** since 2017.

Darius Fadanelli
Director of EDU Outreach - USA

△ ALTAIR

GoTo Webinar - Overview

About the Webinar Interface

- **If any Audio issues**, please go to the Audio tab and switch from Computer to Phone Call

- Please note that you will be muted throughout the whole session

- To post questions, please use the Question Tab – 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 at the same registration page for this webinar.
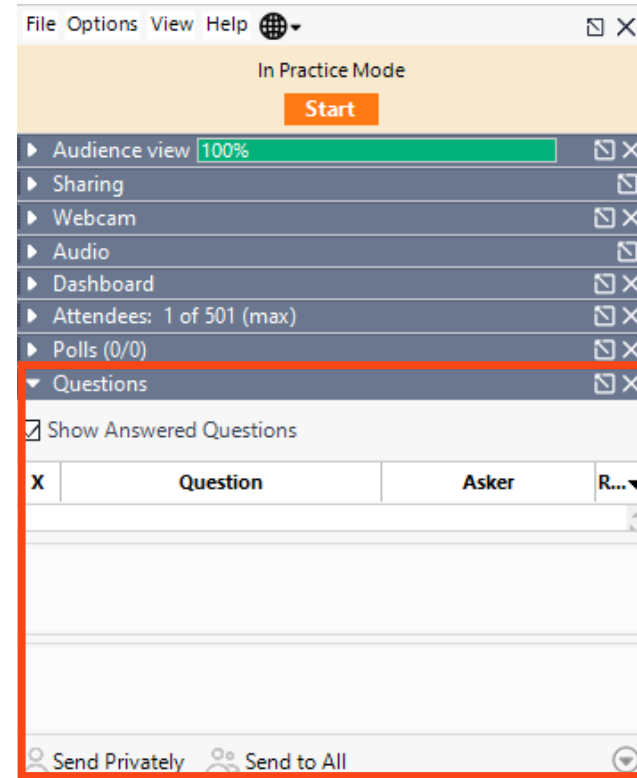
△ ALTAIR

Agenda

Sept 17th – Americas Time (Eastern)

Time CEST	Presenter	Company / Team	Topic
03.00 p.m. – 03.10 p.m.	Darius Fadanelli	Altair US	Altair: Getting Started with Simulation
03.10 p.m. – 04.00 p.m.	Matthias Leister	Student – Altair Germany	Evaluate External Aerodynamics with **Altair Virtual Wind Tunnel**
04.00 p.m. – 05.00 p.m.	Erik Larson	Altair US	Finite Element Modelling with **HyperWorks** Next Generation
05.00 p.m.	End of Session		End of Session

ALTAIR

ALTAIR ACADEMIC

Altair – Academic License

- Altair Units License - Floating network license includes ALL Altair software

- Includes additional software from partners

- Can be accessed via **free** Altair Student Edition: https://studentedition.altair.com

- Or via campus license

- Or request a sponsoring package for your team: https://altairuniversity.com/sponsorshipapp/

The Golden Altair Units Ticket

Electric Drive Design

Control System Design

Optimization

Dashboard & Data Analytics

Thermal and Fluids

Mechanical & Structural

△ ALTAIR

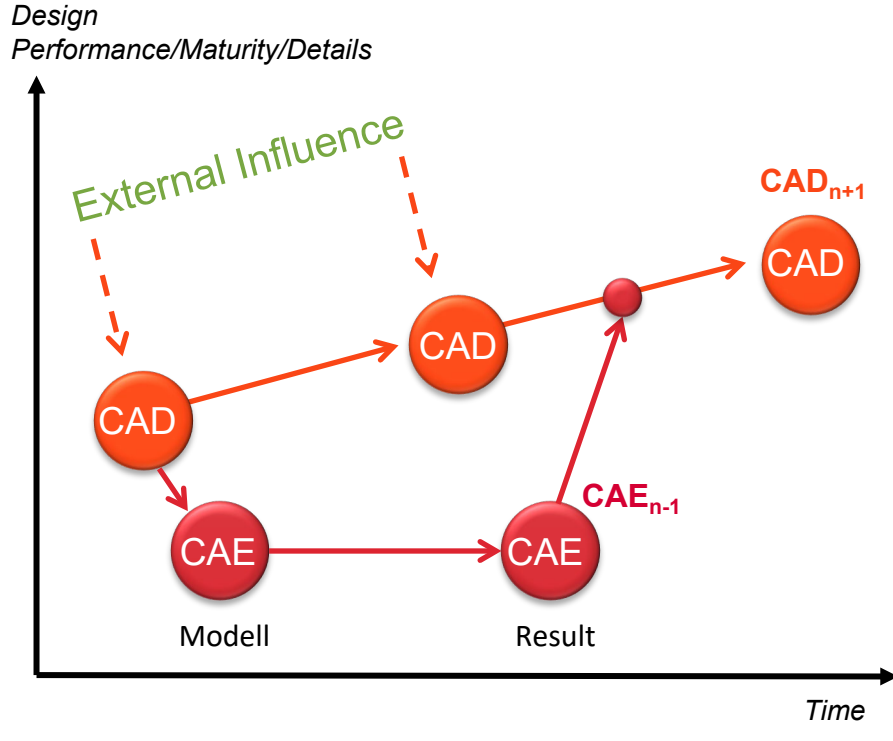# How to practice with the demo files?

www.altairuniversity.com

- Get access to the free Altair Student Edition

- Or request a Sponsorship license for your team

- Download Free E-Books

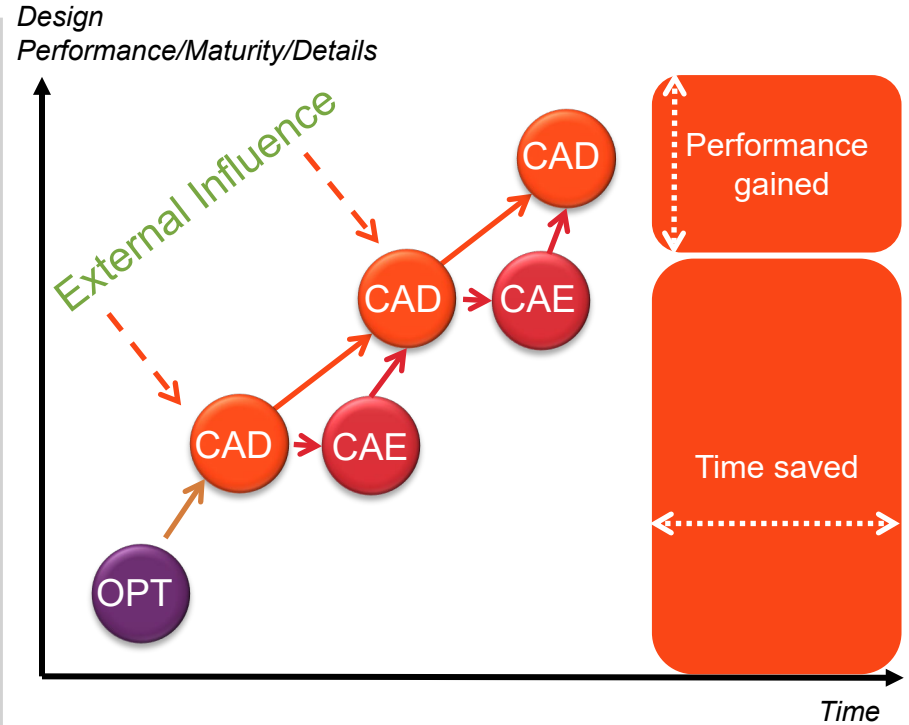- Access all demo recordings and files to start
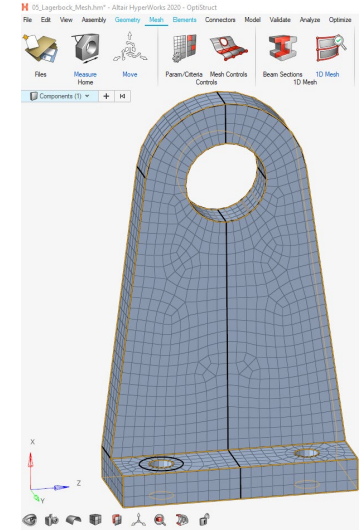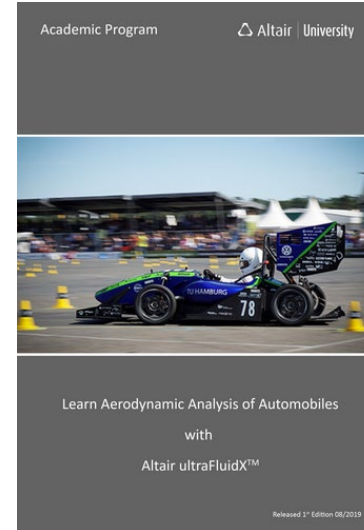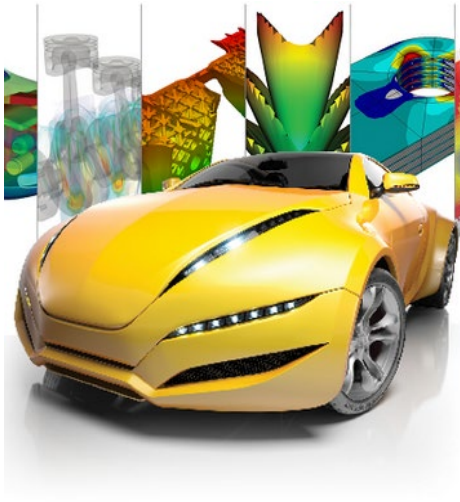
△ ALTAIR

WHY USE SIMULATION DRIVEN DESIGN?

ALTAIR

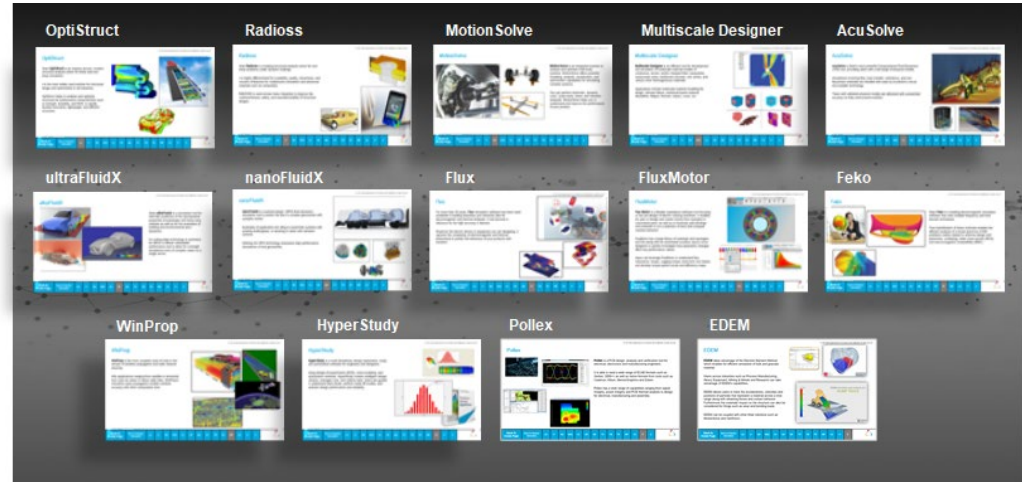# Simulation-Driven Design
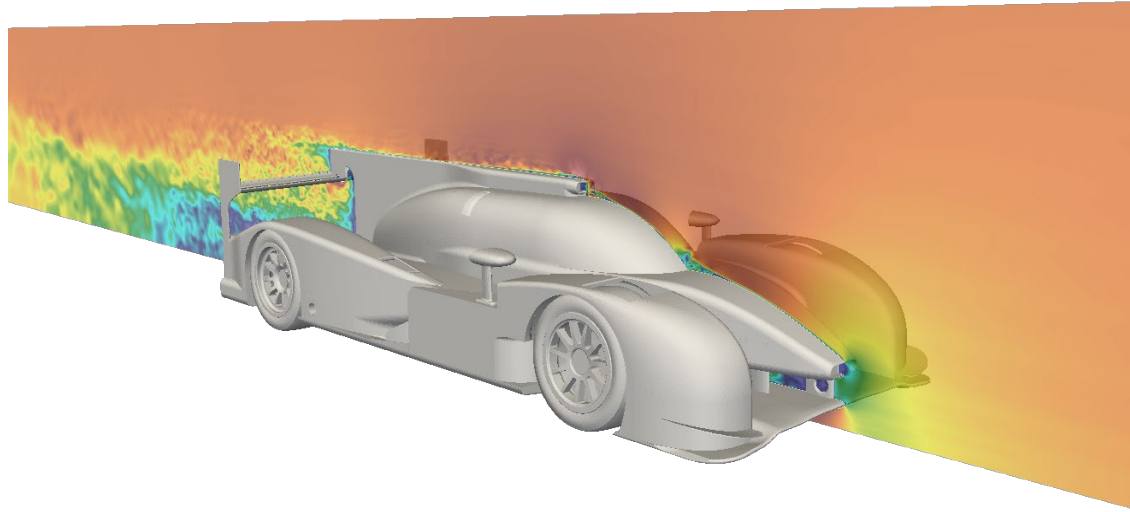
Classic Development Approach

Simulation Driven Design

Physics Solutions

Track 2:
Advanced Simulation

# External Aerodynamic Studies

ALTAIR

External Aerodynamic Studies

Altair Virtual Wind Tunnel

Altair's Virtual Wind Tunnel is a vertical application tailored for external aerodynamic studies. Designed with the users' needs in mind, the graphical user interface provides easy access to problem definition and solution strategies. It integrates smoothly with other Altair products.

- Streamlined, end-to-end workflow
- Accurate, robust, and scalable CFD solver
- Automated, customizable report generation

Home	Design, Modeling, and Visualization	HW/HM	HV	HG	HC	MV	SL	VWT	HL
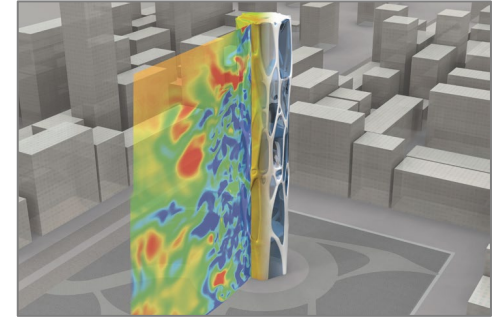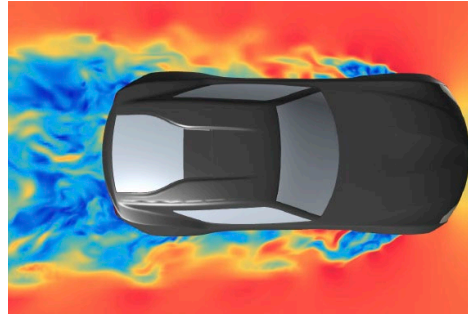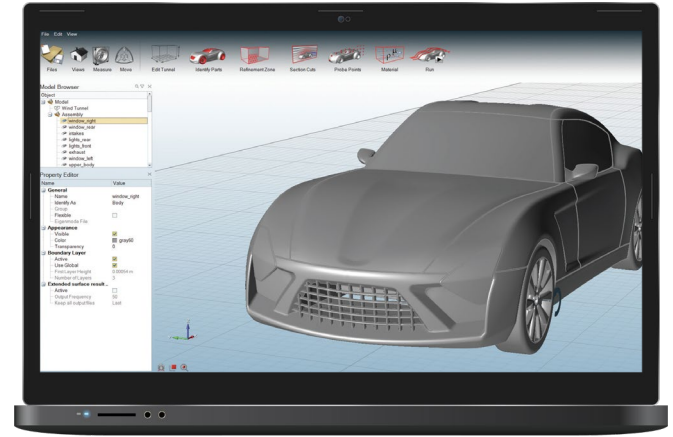
△ ALTAIR

Ultra-fast Aerodynamics Simulation

Altair ultraFluidX

ultraFluidX is a simulation tool for ultra-fast prediction of the aerodynamic properties of passenger and heavy-duty vehicles as well as for motorsport applications.

Its cutting-edge technology is optimized for GPUs to deliver unbeatable performance and to allow for overnight simulations even of complex cases on a single server.

- Accurate full-vehicle aero simulations overnight
- It allows design of experiments and optimization
- Energy and cost efficient GPU-based computing
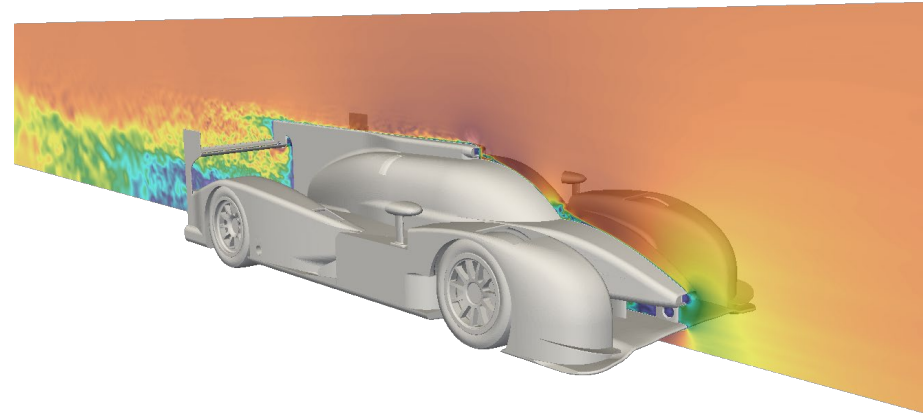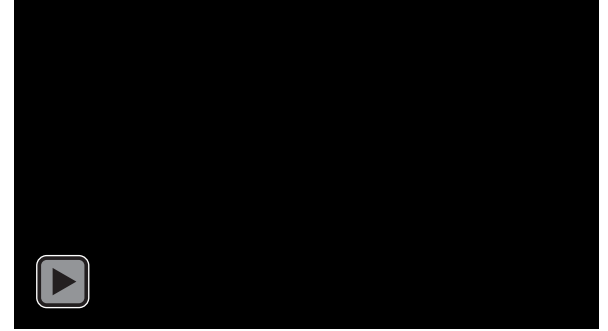
△ ALTAIR

Altair Student Webinar Series

Speaker Profile

- Since 2017: Mechanical Engineering Student at TU Munich

- 2018 – 2019: Member of the formula student racing team Tufast (Aerodynamics subteam, responsible for the cooling system)

- 2020: Internship at Porsche (Body engineering exterior front systems)

- Currently working on a bachelor thesis at Altair about the simulation of a formula student car with ultraFluidX

Matthias Leister

Bachelor Thesis Student – Altair Germany

△ **ALTAIR**

# High-fidelity Finite Element Modeling
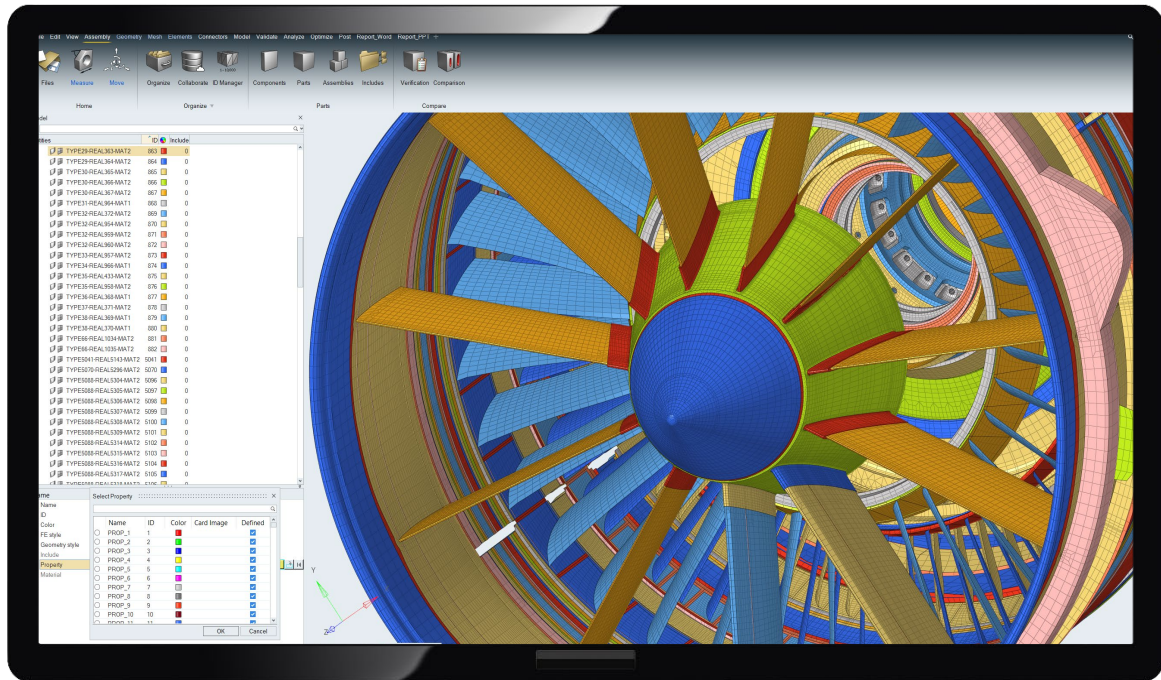
High-fidelity Finite Element Modelling

Altair HyperMesh

HyperMesh is the market-leading, multi-disciplinary finite element <u>pre-processor</u> which manages the generation of the largest, most complex models, starting with the import of a CAD geometry to exporting a ready-to-run solver file.

- Pre-processing for complex assemblies
- Open-architecture design
- Automated model build

Ply angles:
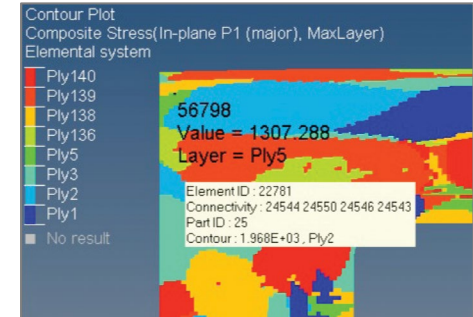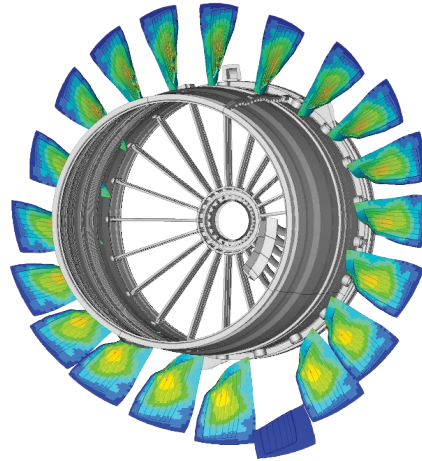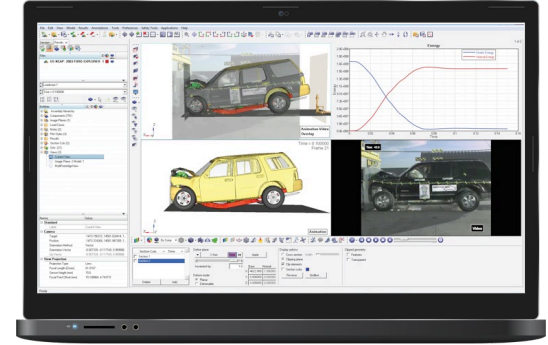- 0
- -45
- 45
- 90
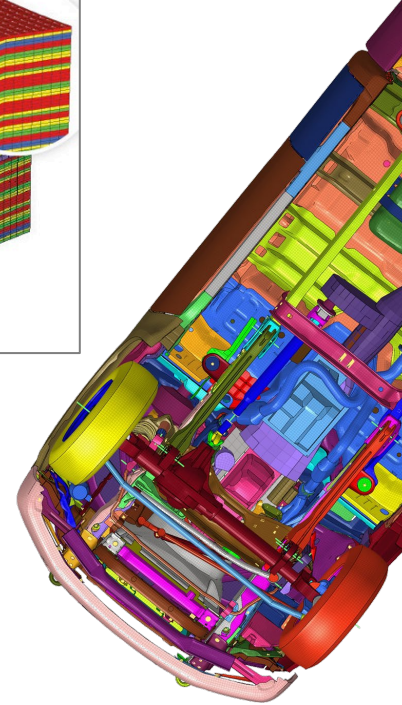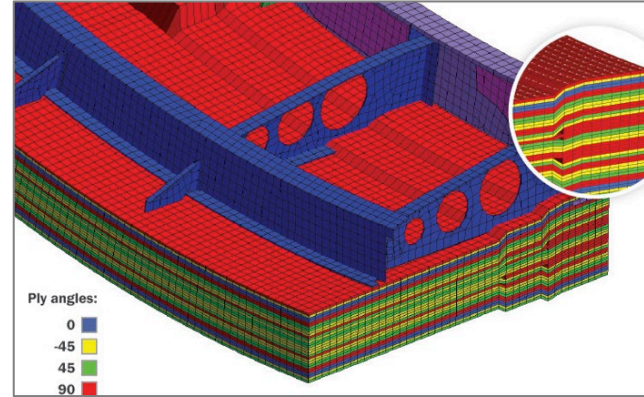
ALTAIR

CAE Results Visualization and Reporting

Altair HyperView

HyperView is a complete <u>post-processing</u> and visualization environment for finite element analysis, CFD and multi-body system data. It is the new standard for speed and integration of CAE results post-processing.

- Multi-page and multi-window post-processing
- Report templates for efficient results evaluation
- Results comparison and correlation with test data

Contour Plot
Composite Stress(In-plane P1 (major), MaxLayer)
Elemental system

| Ply140 |
| Ply139 |
| Ply138 |
| Ply136 |
| Ply5 |
| Ply3 |
| Ply2 |
| Ply1 |
| No result |

56798
Value = 1307.288
Layer = Ply5

Element ID : 22781
Connectivity : 24544 24550 24546 24543
Part ID : 25
Contour : 1.968E+03 , Ply2

| Home | Design, Modeling, and Visualization | HW/HM | HV | HG | HC | MV | SL | VWT | HL |

ALTAIR

Altair Student Webinar Series

Speaker Profile

- Mechanical Engineering – Michigan Technological University

- 30+ Years of Design and Analysis Experience

- 14 years at Altair

- Works with Faculty, Students, and Student Teams to help them use Finite Element Analysis, Optimization and Multi Body Dynamics to become better engineers and design more efficient products.

Erik W. Larson
Technical Account Manager – EDU – Altair Engineering

△ ALTAIR

THANK YOU

altair.com

#ONLYFORWARD

ALTAIR