Invitation to participate
3rd OptiMACS Network Short Course:

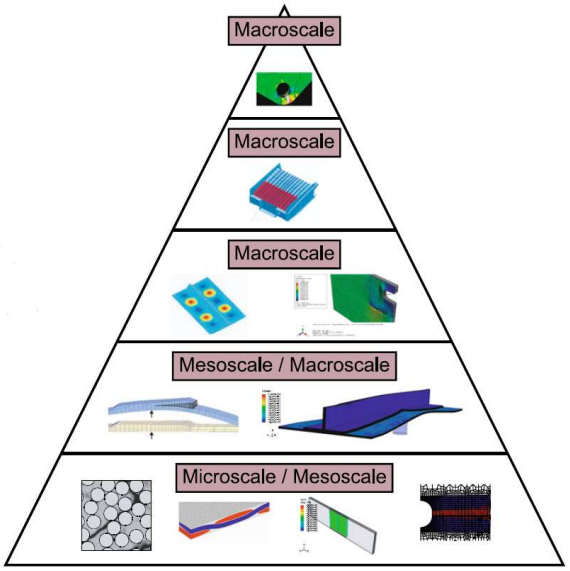
OptiMACS

The challenge of efficient structural design optimization – Outline of challenges and opportunities

December 2nd – 3rd , 2020
Online Workshop

Even though the use of composite materials in modern aeroplanes has increased drastically in the last few years, optimization of aerospace composite structures is still a particularly challenging task. A truly optimal solution is usually difficult to achieve, limiting the full exploitation of the benefits of composites. This is partially due to interaction between the various different manufacturing processes (whether these involve single fibre tows, tapes, prepreg sheets etc.) and the shapes, thicknesses and lamination sequences which can be achieved via these processes. **OptiMACS** aims at improving the accuracy and efficiency of Multidisciplinary Design Optimization (MDO) models and techniques by enhancing the design models and criteria related to composites failure and manufacturing, developing and implementing multiscale models for composites, as well as investigating advanced MDO algorithms and architectures for enhancing efficiency.

The primary objective of this Network Short Course (NSC) is to provide a view of state-of-art analysis methods and recent advancements in the optimisation of engineering structures including composite structures, taking account of constraints imposed by manufacturing processes, as well as the possibilities provided by the large number of design variables inherent in composite materials.



LIST OF SPEAKERS

- **Prof. Michael Affenzeller**
  Heuristic and Evolutionary Algorithms Lab, Softwarepark Hagenberg, Austria
- **Prof. Bruno Castanié**
  Clément Ader Institute, Toulouse, France
- **Prof. Roland Hinterhölzl**
  Lightweight Design and Composite Materials, , University of Applied Sciences Upper Austria
- **Prof. Martin Schagerl**
  Intitute of Structural Lightweight Design, Austria
- **Prof. Carlos González**
  IMDEA institute, Madrid, Spain
- **Prof. Ulrich Langer**
  Institute of Computational Mathematics, Austria

Entrance fee: FREE, but registration required! Please contact:

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- Dr. Dimitrios Chronopoulos, *Dep. Mechanical, Materials & Manufacturing Engineering, University of Nottingham,* Tel: +44 (0) 115 846 8454, Email: Dimitrios.Chronopoulos@nottingham.ac.uk

For further information see homepage: https://optimacs.net/nsc3

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SCHEDULE DAY 1, WEDNESDAY DECEMBER 2nd, 2020	
TIME (CET/Vienna)	**PROGRAM**
13:00	**Introduction to Network Short Course and OptiMACS global overview** *by Prof. Dimitrios Chronopoulos*
13:30	**Virtual Twins of Aeronautic Composite Structures: Design, Manufacturing and Testing** *by Prof. Bruno Castanié (Clément Ader Institute, Toulouse, France)*
14:20	**Damage tolerance and structural health monitoring of lightweight optimized composite parts** *by Prof. Martin Schagerl (Intitute of Structural Lightweight Design, JKU-Linz, Austria)*
15:10	**Coffee break**
15:30	**From process simulation to structural simulation of Composites** *by Prof. Roland Hinterhölzl (Lightweight Design and Composite Materials, University of Applied Sciences Upper Austria, Wels, Austria)*
16:20	**Closing of the 1st day**

SCHEDULE DAY 2, THURSDAY DECEMBER 3rd , 2020	
TIME (CET/Vienna)	**PROGRAM**
10:00	**Opening of the 2nd day**
10.10	**Efficient Simulation-based Design Optimization using Machine Learning** *by Prof. Michael Affenzeller (Heuristic and Evolutionary Algorithms Lab, Softwarepark Hagenberg, Austria)*
11:00	**Virtual Testing of Structural Composites: a multiscale perspective.** *by Prof. Carlos González (IMDEA institute, Madrid, Spain)*
11.50	**Lunch**
13.00	**Adaptive Space-Time Finite Element and Isogeometric Analysis** *by Prof. Ulrich Langer (Institute of Computational Mathematics, JKU-Linz, Austria)*
13.50	**Early Stage Researcher talks (part 1):** *by Georgios Ntourmas (ESR 1)* *by Giuseppe Corrado (ESR 2)*
14.30	**Coffee Break**
14.40	**Early Stage Researcher talks (part 2):** *by Neoklis Traiforos (ESR 3)* *by Massimo Sferza (ESR 4)* *by Weijie Tan (ESR 5)*
15.40	**Seminar closing message**

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