

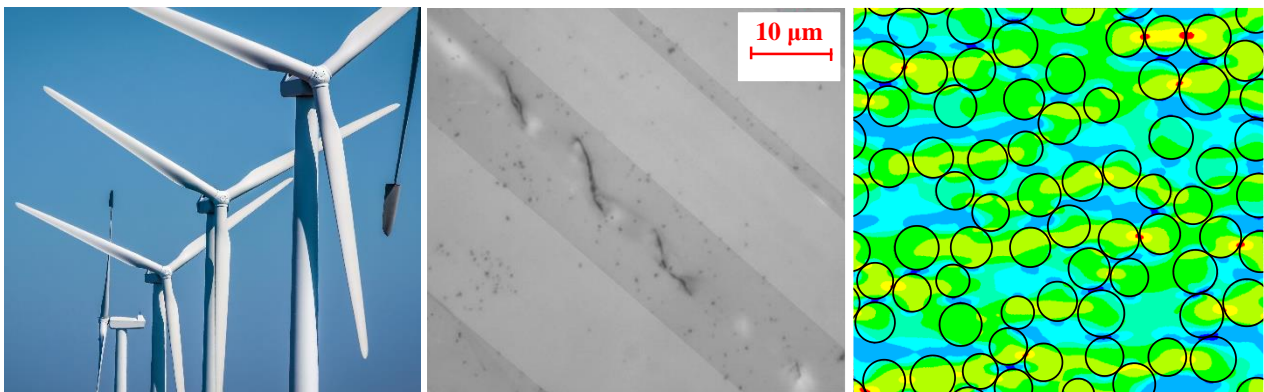
1222 · 2022  
**800**  
ANNI



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA



# 3<sup>rd</sup> International Summer School on Fatigue and Damage Mechanics of Composite Materials *4 - 8 July 2022*



## FIRST ANNOUNCEMENT

Organized by

*The Department of Management and Engineering - University of Padova*

[www.gest.unipd.it/damageschool2022](http://www.gest.unipd.it/damageschool2022)



**Aims and contents.** After the first two successful editions in 2015 and 2019, with the enthusiastic participation of students and young researchers from all over the world, the third edition of the international Summer School on Fatigue and Damage Mechanics of Composites will be held in Vicenza (Italy) from the 4th to the 8th of July 2022. The venue is the Department of Management and Engineering, campus of the University of Padova in Vicenza. The School has already received the patronage of ESCM (the European Society for Composite Materials), AIAS (the Italian Society for Mechanical Design), Assocompositi (the Italian Association of Composite Industries) and IGF (the Italian Group of Fracture).

The School aims at providing young scientists and engineers both from Academia and Industry with the unique opportunity to meet and learn from leading international experts about advances in the fatigue and damage mechanics of polymer-based composite materials.

Based on the experience and the feedback received after the first editions, the format will be improved with more tailored theoretical sections, hands-on activities and the presentation of industrial application cases provided by experts of leading worldwide companies. Particular attention will be always devoted to the understanding of damage mechanisms and the paths to incorporate them into predictive models.

During the five-day program, senior researchers and industry representatives will provide lectures on experimental techniques for damage investigations, damage evolution under fatigue, analytical and numerical damage modelling, structural health monitoring and examples of design against damage in advanced industrial applications.

**School coordinator.** Professor Marino Quaresimin (University of Padova), Editor of Composites Science and Technology.

**Teaching staff.** All the lectures will be delivered by professors and senior researchers from leading international research institutions and industries. Already confirmed speakers are: prof. Marino Quaresimin, Michele Zappalorto and Paolo Andrea Carraro (University of Padova), prof. Ramesh Talreja (Texas A&M University), Prof. Leif Asp (Chalmers University of Technology), Prof. Alberto Barroso (University of Seville), Dr. Soraia Pimenta (Imperial College London), Dr. Yongxin Huang (Chief Engineer Structural Blade Design, Siemens Gamesa Renewable Energy). Moreover, other colleagues from Industry and Academia will also be involved.

**Participants.** The course is specifically designed for Ph.D. students, young researchers and industry engineers working in the field of composite materials, already in possess of a basic knowledge of the mechanics of composites. Certificates will be issued on the basis of participation to the course and the evaluation of the final assessment will entitle Ph.D. students to 5 ECTS.

**The Organizing Committee is exploring financial support possibilities to grant half of the registration fees for selected valuable participants. Further information will be soon available on the website ([www.gest.unipd.it/damageschool2022/](http://www.gest.unipd.it/damageschool2022/))**

**Program.** The following subjects will be presented and discussed during the school lectures:

- ✓ Introduction to the damage mechanics of composites and strategies for design against fatigue
- ✓ Simplified (homogenized) approach to the life prediction of composite parts
- ✓ Advanced modelling of damage evolution (transverse cracking, delamination, fibre failure, stiffness drop associated to damage evolution)

- ✓ Effects of manufacturing on damage evolution, experimental evidence and modelling
- ✓ Fatigue of bonded connections, experimental evidence and modelling strategies
- ✓ Methods for Structural Health Monitoring via electrical resistance measurements
- ✓ Application exercises
- ✓ Industrial case histories

A detailed program with the class schedule and the lecturers will be soon available at the school website ([www.gest.unipd.it/damageschool2022](http://www.gest.unipd.it/damageschool2022))

**General information.** The School will be held at the Department of Management and Engineering of the University of Padova, in Vicenza (Italy) from the 4th to the 8th of July 2022.

**Expression of interest and discount.** To be informed about any news related to school organization and achieve a 5% discount in the registration fee, students and researchers interested in the event can express, with no obligation, their interest in participating to the School filling the form at the following link:

<https://elearning.unipd.it/dtg/mod/feedback/view.php?id=76397&lang=en>

### **Experiences of participants at the first and second edition**

"Participating in the summer school related to fatigue and damage of composite materials in the beautiful city of Vicenza was a great experience. I had the opportunity to attend lectures from the experts on the field, meet international students from renowned universities and enjoy a great organization. Being in the beginning of my PhD at that time, it helped me a lot to define my research targets." *Kalliopi-Artemi Kalteremidou, researcher at Vrije Universiteit Brussel*

"My experience in the summer school in 2015 can be summarized in three parts. First, both the content and the lecturers were of high quality, which covered very interesting topics related to fatigue and damage mechanics in composite materials, not only from a theoretical perspective but also from their potential applications in the industry. Second, the organization of the course was very good and the organizers besides being recognized researchers in this field are also kind people willing to clarify all the doubts that are had. And third, Vicenza, the city where the event takes place, is very beautiful, full of history and with excellent food..." *Oscar Gerardo Castro Ardila, Postdoc at the Department of Wind Energy. - Technical University of Denmark*

"Being a PhD student, the concise and well delivered lectures by the experts at the summer school in 2019 provided an excellent insight to the current developments and trends in the field of composites fatigue. My knowledge of experimental techniques for damage investigations, damage evolution under fatigue, analytical and numerical modeling of damage, structural health monitoring and examples of design against damage for polymeric composite materials in advanced industrial applications was certainly broadened. As a result, I was able to present the advancements and results of my own research at the flawlessly organized online ICFC 8. Finally, I am thankful for the friendships formed at these events that are still existing." *Goran Vizentin, Assistant Professor at Faculty of Maritime Studies Rijeka, University of Rijeka*

"Attending the summer school in beautiful Vicenza back in 2019 was an amazing experience! I had the chance to attend lectures and meet experts in the field of fatigue in composites from both universities and industry. The lectures covered a broad range of fatigue-related topics, such as damage mechanisms that can occur during fatigue loading for different test set-ups, and presented an overview on both modelling and experimental work done from renowned institutes and industries globally. In addition, I got the chance to meet PhD students from around the world and exchange ideas and a couple of Aperols! I highly recommend attending the summer school!!" *Danijela Stankovic, Postdoc at The University of Edinburgh.*