

9th World Conference on 3D Fabrics and Their Applications (Online)

Conference Programme

This programme uses British Summer Time with Beijing Time in brackets

Day 1: Thursday 8 April 2021

Welcome Session

- 08:00 (15:00) Welcome and Introduction to Conference – **Dr Xiaogang Chen**, Co-Chair of the Conference, The University of Manchester, UK
08:05 (15:05) Welcome Speech and Conference Opening – **Professor Guoji Liu**, President, Zhongyuan University of Technology, Zhengzhou, China
08:15 (15:15) Thematic Speech: 3D Fabric Composites: Damage tolerant structures – **Professor Constantinos Soutis**, Co-Chair of Conference, The University of Manchester, UK

Session 1: Keynote Speeches (30+5 min each)

Session Chairman: Professor Constantinos Soutis, Co-Chair of Conference, The University of Manchester, UK

- 09:00 (16:00) Thomas Gries, RWTH Aachen University, Germany, **Technology Overview of 3D Textile Materials and Recent Innovation and Applications**
09:35 (16:35) Kadir Bilisik, Erciyes University, Turkey, **Multi-Nanostitched 3D Carbon/Epoxy Nanocomposites: Tensile/Shear and Interlaminar Properties**
10:10 (17:10) Prasad Potluri, The University of Manchester, UK, **Robotic Preforming of 3D Fibre Architectures**
10:45 (17:45) Francois Boussu, ENSAIT, France, **3D Warp Interlock Fabrics and Their Different Applications for Soft and Hard Protections**
11:20 (18:20) Hong Hu, Hongkong Polytechnic University, China, **3D Fabrics with Negative Poisson's Ratio**

Session 2: Development of 3D Fabrics - 1 (15+5 min each)

Session Chairman: Professor Thomas Gries, RWTH Aachen University, Germany

- 12:00 (19:00) Yordan Kyosev, TU Dresden, Germany, **Joining high thickness materials by sewing – first modelling steps of the stitched place**
12:20 (19:20) George Spackman, University of Nottingham, UK, **Weft Yarn Interlacement Modelling for 3D Profiled Structures**
12:40 (19:40) Marie-Ange Bueno, Université de Haute Alsace, France, **Friction between Fibres and Tows**

13:00 (20:00) Xiping Li, Xi'an Polytechnic University, China, **Research status of 3D braiding technology**

13:20 (20:20) Yuyuan Shi, University of Leeds, UK, **Biomimetic approach for production of 3D woven spherical composite applied in apparel protection and performance**

Session 3: Development of 3D Fabrics - 2 (15+5 min each)

Session Chairman: Professor Prasad Potluri, University of Manchester, UK

13:40 (20:40) Julie Walther, Université de Haute Alsace, France, **Interactions between tows during interlock weaving process**

14:00 (21:00) Christoph Peiner, RWTH Aachen University, **ITA 3D-Knit: Knitting 3D-shape forms using large circular knitting machines**

14:20 (21:20) Wei Fan, Xi'an Polytechnic University, China, **Modal analysis of 3D multi-axial hybrid composite with experimental and numerical methods**

14:40 (21:40) Mengru Li, ENSAIT, France, **Advancements in design and manufacturing technique of 3D warp interlock fabrics woven by high performance yarns for body armour applications**

15:00 (22:00) Sree Shankhachur Roy, University of Manchester, UK, **Impact Performance of 2D and 3D braided Composite tubes developed using a 3D 4×4 variational braider**

Day 2: Friday 9 April 2021

Session 4: 3D Fabrics and Applications (15+5 min each)

Session Chairman: Professor Kadir Bilisik, Erciyes University, Turkey

08:00 (15:00) Claudia Lüling, Frankfurt University of Applied Sciences, Germany, **Architecture Fully Fashioned: Advanced 3D Textile Applications for the Building Envelope**

08:20 (15:20) Andrea Giglio, Politecnico di Milano, Italy, **3D textiles in architecture and fashion design: a brief overview of the opportunities and limits in current practice**

08:40 (15:40) Jie Wang, Université de Lyon, France, **Macro-meso analysis of 3D woven composites during the forming process**

09:00 (16:00) Bin Wang, Xi'an Polytechnic University, China, **Preparation and Properties of Glass Fiber Reinforced Carbon Foam Composites**

09:20 (16:20) Chen Chen, ENSAIT, France, **Influence of core construction on mechanical performance of a novel tufted sandwich**

09:40 (16:40) Mohammad Toufiqul Hoque, Tiangong University, China, **A comprehensive study on three-dimensional (3D) thin shell preforms**

Session 5: 3D Textiles for Protection (15+5 min each)

Session Chairman: Professor Francois Boussu, ENSAIT, France

- 10:00 (17:00) Yanyan Chu, Zhongyuan University of Technology, China, **Ballistic Performance of Twaron® Fabrics Coated with TiO₂/ZnO composites through Sol-gel Technology**
- 10:20 (17:20) Xiaozhou Gong, Wuhan Textile University, China, **The Design of Cellular Fabrics with Density Gradient**
- 10:40 (17:40) Chunhong Zhu, Shinshu University, Japan, **Compression property of 3D hollow-structured fabric composites**
- 11:00 (18:00) Yanfei Yang, Zhongyuan University of Technology, China, **Meso-scale Numerical modeling of uni-directional composite panel under ballistic impact**
- 11:20 (18:20) Shengnan Min, Beijing Institute of Fashion Technology, China, **Study on the ballistic performance of multiply wadded through-the-thickness angle-interlock fabric reinforced composites**
- 11:40 (18:40) Yazhen Liang, University of Manchester, UK, **Review on engineering design of military composite helmet**

Session 6: 3D Textiles with Novel Performance (15+5 min each)

Session Chairmen: Professor Hong Hu, Hongkong Polytechnic University, China

- 12:00 (19:00) Christoph Peiner, RWTH Aachen University, Germany, **Development and Standardization of Testing Equipment and Methods for Spacer Fabrics**
- 12:20 (19:20) Yajie Gao, University of Manchester, UK, **Development of Woven Fabrics Made of Helical Auxetic Yarns**
- 12:40 (19:40) Ji Li, University of Manchester, UK, **Preparation and evaluation of multilayer graphene on polyethylene film for tensile properties**
- 13:00 (20:00) Xu Wang, Anhui Polytechnic University, China, **Parametric Design of Through-thickness Orthogonal Woven Fabric Based on Maxscript**

Session 7: Advances of Textile Technology and Materials (15+5 min each)

Session Chairmen: Professor Yordan Kyosev, TU Dresden, Germany

- 13:20 (20:20) Jiazhi Ren, Zhongyuan University of Technology, China, **Analysis of Properties and Styles of Combed Fabric Based on KES-FB Fabric Style Tester**
- 13:40 (20:40) Haoxian Zeng, Zhongyuan University of Technology, China, **Influences of Combined Sections in Networked Fabrics against Ballistic Impact**
- 14:00 (21:00) Fangtao Ruan, Anhui Polytechnic University, China, **Mechanism of axial compressive fracture of filament covering fiber reinforced composites**
- 14:20 (21:20) Meini Su, University of Manchester, UK, **A new life for CFRP wastes: GRACE**



The University of Manchester



14:40 (21:40) Bo Chen, Université de Lyon, France, **Analysis of the forming of interlock textile composites using a hypoelastic approach**

15:00 (22:00) Hatim Alotaibi, University of Manchester, UK, **The role of upscaling in permeability modelling of woven fabrics**

Ending remarks

15:20 (22:20) **Professor Constantinos Soutis**, Co-Chair of Conference, The University of Manchester, UK

15:25 (22:25) **Dr Xiaogang Chen**, Co-Chair of the Conference, The University of Manchester, UK