

Preliminary **PROGRAMME** The three-day symposium is organised around 3 main topics including **5 keynote lectures & 46 lectures** in plenary and parallel sessions. The film "L'Arc de Triomphe, Wrapped" backstage-engineering for a work of art by büro für leichtbau, Tritthardt+Richter will be shown.

## WEDNESDAY 7<sup>TH</sup> JUNE

08.30-09.15 **Registration**

09.15-09.30 **Welcome & Introduction**

09.30-10.30 **Keynote lecture**

**Bouncing Bridge: ephemeral, autonomous and self-supporting pneumatic temporary structure**

*Grégoire Zündel and Ramon Sastré*

10.30-10.50 **Coffee break**

10.50-12.55 **Plenary session topic 1**

**Advanced tools for futuristic skins – ETFE**

*Massimo Maffei, Antonio Diaferia, Nicola Todesco*

**Modeling of impacts on tensile structures**

*Adam Bown, Adrian Cabello, Artem Holstov*

**Porto Pi shopping center's floating pergolas**

*Juan García-Lastra Zorrilla, Juan Rey-Rey, Alejandro Minguez*

**PumpItUp, gite mobile for the European cultural capital**

*Esch-sur-Aizette 2022*

*Bernd Stimpfle*

**The integration of CAD and FEA for lightweight design and analysis**

*Ann-Kathrin Goldbach, Kai-Uwe Bletzinger*

13.00-14.00 **Lunch break**

14.00-16.05 **Parallel session A topic 3**

**Integrating sustainability aspects in the teaching of lightweight structures and their comparison with common structures**

*Heidrun Bögner-Balz, Sarah Von Der Weth, Karsten Moritz*

**The environmental performance of membrane structures**

*Zehra Eryuruk, Marijke Mollaert*

**A comparative LCA between a Textile Façade Retrofit and conventional solutions**

*Giulia Procaccini, Carol Monticelli*

**ATLAS architectural membrane as a core element for larger and energy efficient air domes**

*Alexandra Sonnenberg*

**T-shade: experimental case study conducted to reuse t-shirts as a tensile-shading system**

*Amirhossein Ahmadian, Gergely Máttyás Jelinek Jelinek, Aina Radovan, Salvatore Viscuso, Alessandra Zanelli*

14.00-16.05 **Parallel session B topic 2**

**Computational design workflow for a complex cable network**

*Jef Rombouts, Oriane Guidet, Ludovic Regnault, Klaas De Rycke*

**Development and validation of an experimental methodology for the characterization and FEM analysis of fibre-reinforced architectural meshes**

*Salvatore Viscuso, Carol Monticelli, Alessandra Zanelli, Alberto Fiorenzi*

**Parametric workflow approach in membrane design, from details to construction**

*Rémi Journo*

**Testing Parameters for uniaxial short-term tensile tests of ETFE foils and their connections**

*Dominik Runge, Jörg Uhlemann, Natalie Stranghöner*

16.05-16.25 **Coffee break**

16.25-17.15 **Parallel session A topic 1**

**Swatch Omega Headquarters - Multifunctional ETFE-modules in the building envelope**

*Karsten Moritz, Koffi Alate*

**Temporary structure Grand Palais Éphémère**

*Patrick Vaillant, Beatriz Arnaiz, Feike Reitsma*

16.25-17.15 **Parallel session B topic 3**

**Comparison of PE coated PE weave to PVC coated PES weave**

*Rogier Houtman*

**Advancing the Design of Sustainable ETFE Membrane Structures: Insights from the Light Consortium Project**

*Mohammad Hosein Nejabatmeimandi, Alessandro Comitti, Luis Seixas, Adrian Cabello, Adam Bown*

17.15-18.15 **Keynote lecture** Architecture in motion

*Louis Ratajczak*

18.15-20.00 **Cocktail drink**

**SUPPORT** This symposium is financially supported by Nantes Université & Nantes Métropole

## SPONSORS



<https://tensinantes2023.sciencesconf.org/>



**LOCATION** Nantes Université – Campus Lombarderie, building 2. The campus is from the historical center easily accessible with Line 2: tram stop "Michelet-Sciences". Nantes has an international airport and a TGV railway station.

## THURSDAY 8<sup>TH</sup> JUNE

09.00-10.00 **Keynote lecture**

**The Pathways to Zero Carbon for Tensioned**

**Membrane Architecture: ongoing actions and next steps**

*Bruce Danziger and Carol Monticelli with Beatriz Ferreyra Vargas and Nathaly Michelle Rodriguez Torres*

10.00-10.20 **Coffee break**

10.20-12.25 **Plenary session topic 3**

**Lightweight ideas for a built environment beyond concrete**

*Katja Bernert*

**How lightweight architecture contribute to sustainability & decarbonization strategy?**

*Thomas Bonneville*

**6dTEX - Sustainable Composite Structures from 3D Print on 3D Textile**

*Claudia Luelling, Sascha Biehl, Roxana Tennert, Gözdem Dittel, Marina Chernychova, Thomas Gries*

**Architecture for pigs**

*Maxime Durka*

**An innovative solar shading device for outdoor thermal comfort**

*Adriana Angelotti, Alara Kutlu, Salvatore Viscuso, Andrea Alongi, Alessandra Zanelli*

12.30-13.30 **Lunch break**

13.30-15.35 **Parallel session A topic 2**

**Living in the 7th element: Hans-Walter Müller's pneumatics**

*Katja Bernert*

**Finite element modelling of inflatable beams up to the ultimate stability phase**

*Laurent Gomet, Jean-Christophe Thomas*

**Analytical, numerical and experimental study of inflatable panels**

*Paul Lacorre, Anh Le van, Rabah Bouzidi, Jean-Christophe Thomas*

**The calculation of large cable reinforced gas storage systems**

*Jürgen Holl*

**Textile covers of biogas storage tanks - Interaction between Membrane behavior and Operation of the Gas Membrane**

*Rosemarie Wagner, Kai Heinlein*

13.30-15.35 **Parallel session B topic 1**

**Affine minimal surfaces: an intuitive family of shapes for tensile architecture**

*Cyril Douthe, Rémi Belloc, Ken'ichi Kawaguchi*

**Value enhancement of the roof of the CC Le Polygone Montpellier**

*Fabian Ascaso, Beatriz Arnaiz, Ramon Julián, Feike Reitsma*

**Optimisation of tensegrity systems with tensioned fabrics**

*Fevzi Damsik, Meltem Sahin, Caglar Samat*

**Retractable membrane roofs as urban shading device**

*Liu Dongyuan, Gregor Grünkoma, Julian Lienhard, Ata Chokhachian, Thomas Auer*

**Use of Parametric Design in Design to Production Process of a Membrane Façade**

*Milan Dragoljevic, Roberto Canobbio*

15.35-16.00 **Coffee break**

16.00-17.00 **Keynote lecture**

**Textile Architecture with or versus today challenges in built environment**

*Rosemarie Wagner*

17.00-19.00 **Walk the green line. Guided walk to the venue of the Galerie des Machines**

19.00-23.00 **Conference dinner at Galerie des Machines**

## FRIDAY 9<sup>TH</sup> JUNE

08.15-09.30 **General Assembly TensiNet**

09.30-10.30 **Keynote lecture**

**Milestones of ETFE construction methods and starting points for further developments in membranes structures**

*Karsten Moritz and Jean-Christophe Thomas*

10.30-10.50 **Coffee break**

10.50-12.55 **Plenary session topic 2**

**Design and execution of membrane structures acc. to CEN/TS 19102**

*Jörg Uhlemann, Bernd Stimpfle, Natalie Stranghöner*

**Determination of ULS values of ETFE membrane structures acc. to Eurocode using tensile strength measurements in quality control of production**

*Torsten Balster, Carl Maywald, Lazarev Delche*

**On the design of membrane structures with the partial safety factor concept – a parametric study on the influence of structural and probabilistic properties**

*Martin Fueder, Max Teichgraber, Daniel Staub, Kai-Uwe Bletzinger*

**Characterization of polyethylene structure membrane**

*Sherryl Patton*

**Practical application of a stress-ratio dependent adaptive material model in the structural analysis of textile structures**

*Jörg Uhlemann, Mehran Motevalli, Natalie Stranghöner, Daniel Balzan*

13.00-14.00 **Lunch break**

14.00-15.40 **Parallel session A topic 3**

**Suntex: weaving solar energy into building skin**

*Rogier Houtman, Ahmed Mohamed Ahmed, Pauline van Dongen, Mariana Popescu*

**Integration of the Fog water harvesting system in lightweight structure design for emergency camps**

*Maria Giovanna Di Bitonto, Nathaly Michelle Rodriguez Torres, Alara Kutlu, Nicolò Elio Giorgiotti, Alessandra Zanelli*

**Challenges of measuring sound absorption of ETFE membranes in a laboratory**

*Yannick Sluyts, Monika Rychtarikova, Christ Glorieux*

**Greentex: Advanced tensile architectural membranes for active and passive cooling of the outdoor & indoor environments via vertical gardens**

*Benny Pickle*

14.00-15.40 **Parallel session B topic 1**

**Corolla, the soft-robotic coworking pod**

*Paolo Beccarelli, Ofir Albag, Martin Huba, Roberto Maffei*

**The Wave Pavilion from 2014 to 2023: origins, realization and reuse**

*Mathieu Lemunier*

**TensyDome: A pavilion combining tensegrity ring and tensile architecture**

*Nicolas Pauli*

**Beyond bending: tension. Membrane structures 1**

*Josep Ignasi de Llorens Duran*

15.40-16.00 **Outlooks & Thanks**

16.00-17.30 **Working Group Sustainability & Comfort Meeting with invited guest Bruce Danziger**