- TensiNews 35 – call for TensiNews 36
- Techtextil - Textile Structures for New Building 2019 student competition
- Dates for the next meetings & TensiNet activities 2019
- Symposium 2019
- Reports of the TensiNet Working Groups
TensiNews 35
September 2018

& Call
TensiNews 36
Spring 2019

PROJECTS
RESEARCH
REPORTS
ARTICLES
MISC
- TensiNews 35 – call for TensiNews 36
- **Techtextil - Textile Structures for New Building 2019 student competition**
- Dates for the next meetings & TensiNet activities 2019
- Symposium 2019
- Reports of the TensiNet Working Groups
Techtextil student competition 2019 & project Urban Living
City of the Future New Working Group(s)
Techtextil student competition 2019
Techtextil Project “Urban Living – City of the Future”

New Working Group(s)
INTRODUCTION

According to United Nations report two-thirds of the world’s population will be living in cities by 2050. The urban environment is facing dramatic change. It is especially of a high importance in such areas as mobility, architecture, energy consumption and many others.

The significance of the city as an economic space is constantly growing. Cities are the living space of the future. Increasing urbanization and the growth of “megacities” with more than 10 million people provide the conditions for changes.

What the City of the Future will look like? How will technology and textiles converge for new urban models? The fact is, ”smart” cities are needed to provide groundbreaking solutions and create attractive living space despite of increasing population density.
TECHTEXTIL

Techtextil application areas cover the entire spectrum of people’s life, starting from clothing to mobility, from safety to medicine. The usage of technical textiles is of immense importance for the future of a humankind.

On the way to sustainable future urban model, technical textiles are contributing fast and effectively in numerous industries. They make building materials more flexible, cars and planes lighter, clothing functional and living spaces smart.

With technological advances, comfort and safety features, a lot of emphasis is given on the material being used in most of the components.

These changes and developments have resulted in a lot of researches, trying to find the best alternatives to conventional materials in order to meet new characteristics.

Techtextil 2019 will present new possibilities and provide innovative solutions together with partners and exhibitors. Parallel to Texprocess, Techtextil will change the way people think about the future with its special event “Urban Living – City of the Future”.
The key topic “Urban Living – City of the Future” is planned to be presented in the framework of a Special Event during Techtextil 2019. Based on the 12 areas of application of Techtextil the key topic will be mostly presented through the following areas:

- **Architecture** (textile-based materials for the buildings)
- **Clothing** (smart clothes with future-oriented options)
- **Life & Health** (textile for medicine, farming, security)
- **Mobility** (innovative transport systems, textile components for automotives)

12 application areas of Techtextil:
[https://techtextil.messefrankfurt.com/frankfurt/de/zahlen-fakten.html#anwendung](https://techtextil.messefrankfurt.com/frankfurt/de/zahlen-fakten.html#anwendung)
CONCEPT. ARCHITECTURE

While people think of exploring space, figuring out how to create a sufficient environment there, some recent architectural trends are giving plenty of reasons to get excited about the future of built environments on our own planet.

Over the last two decades, the construction industry has been subject to dramatic changes, paving the way for a future in which traditional spatial concepts are no longer valid. Nowadays, architecture is no less beholden to new technologies. They have always been the drivers of both new design and better construction as improvements in material performance.

These innovations in construction methods are made in response to economic as well as environmental demands, such as increased sustainability and energy efficiency standards. New textiles are playing a major role in future architecture and construction.

During Techtextil in Frankfurt all the newest ideas and future buildings models will be presented in the framework of a new concept “City of the Future”.

CONCEPT. ARCHITECTURE

In the framework of a new concept the following ideas will be presented:

- City of the Future area, simulating the transport hub, showing the future urban model, innovative transport system, smart clothing, green systems for the city, safety-oriented textiles etc.

- Material gallery with the samples of innovative textile, used in architecture, automotive industry, medicine, clothing, security systems, etc…

- Student Competition for the young thinkers, presenting their prototypes of future buildings

- “Future Talks” area of Techtextil Forum for partners, presenting their ideas of future urban models, including individual presentations and panel sessions
CONCEPT. IDEAS

In cooperation with company name Messe Frankfurt would like to present the latest innovative ideas in Architecture area. In a special area “City of the Future” next activities can be undertaken:

- Displaying future building models and/ or future building textiles during Student Competition
- Showcasing samples of textile-based materials for construction in Material Gallery
- Presentation of latest products/ ideas for Architecture during TT Forum
- Participation in panel sessions together with industry experts
COMMUNICATION

In order to announce the new concept and to promote the main theme among target audience, special press releases will be created and sent out to the media partners.

The new concept will also become the headline in all Techtextil (Texprocess) media channels, both print and online.

Additionally, appropriate media cooperation with daily, business as well as scientific media will be undertaken.
- TensiNews 35 – call for TensiNews 36
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2018

- **1-2/10/2018** - 13th International Conference on Advanced Building Skins, Bern, Switzerland
- **29-30/10/2018** - Aachen-Dresden-Denkendorf International Textile Conference 2018 “Turning Fibers into Value”, Aachen, Germany

2019

- **14-17/05/2019** - TECHTEXTIL 2019, Frankfurt am Main, Germany
- **20-22/05/2019** - TEXTILE ROOFS 2019
- **7-10/10/2019** – “FORM and FORCE 2019” Joined International conference IASS SYMPOSIUM 2019 & STRUCTURAL MEMBRANES 2019, Barcelona, Spain
- TensiNews 35 – call for TensiNews 36
- Techtextil - Textile Structures for New Building 2019 student competition
- Dates for the next meetings & TensiNet activities 2019
- Symposium 2019
- Reports of the TensiNet Working Groups
SOFTENING THE HABITATS

SUSTAINABLE INNOVATION IN MINIMAL MASS STRUCTURES AND LIGHTWEIGHT ARCHITECTURES
Summary

1. Conference: the themes, the agenda and keynote speakers, topics and sessions
2. TS open talk / WGs meetings
3. Updates on submissions to the call for abstracts
4. Proceedings and selected journal
5. Exhibition: the theme, the locations, the installation
6. Visits and dinner
7. Call for exhibiting
8. Call for sponsors
9. Deadlines matrix
1. Conference
1. Conference: the themes
1. Conference: the themes

MONDAY, 3 JUNE 2019

SOFT STRUCTURES

TUESDAY, 4 JUNE 2019

SOFTENING THE ENVIRONMENT

WEDNESDAY, 5 JUNE 2019

SOFT SKINS
1. Conference: the themes

MONDAY, 3 JUNE 2019

SOFT STRUCTURES

Structural Lightness, Structural Efficiency, New materials, Hybrid structures, Detailing and Installation
1. Conference: the themes

TUESDAY, 4 JUNE 2019

SOFTENING THE ENVIRONMENT

Novel aesthetics, Material and light effects, Designing with advanced lightweight materials, Solar design and daylighting optimization, Energy active skins, Energy/thermal management, Sound insulation, Detailing and installation
1. Conference: the themes

WEDNESDAY, 5 JUNE 2019

SOFT SKINS

Weight reduction, Material selection strategies, Standard regulations, Production methods, Environmental product declaration and Life Cycle Assessment Methodology
1. Conference: the agenda and keynote speakers
1. Conference: the agenda and keynote speakers
1. Conference: the agenda and keynote speakers

MONDAY, 3 JUNE 2019

SOFT STRUCTURES

MORNING
Chaired by:
Marijke Mollaert
Bernd Stimpfle

PLENARY SESSION

KEYNOTES LECTURES
Keynotes:
Christoph Paech
Julian Lienhard
1. Conference: the agenda and keynote speakers

TUESDAY, 4 JUNE 2019

SOFTENING THE ENVIRONMENT

MORNING
Chaired by:
Carol Monticelli,
Peter Gosling

PLENARY SESSION

KEYNOTES LECTURES
Keynotes:
Maibritt Perdersen Zari
Norihide Imagawa

University of Wellington, Ecologies Design Lab
TIS & Partners
1. Conference: the themes

WEDNESDAY, 5 JUNE 2019

SOFT SKINS

MORNING – PLENARY SESSION

_chaired by:_
Alessandra Zanelli,
Julian Lienhard

_keynotes:_
Mette Ramsgaard Thomsen
Jan Knippers

The Royal Danish Academy of Fine Arts

Knippers and Helbig Advanced Engineering
1. Conference: the agenda, **topics and sessions**

**MONDAY, 3 JUNE 2019**

**SOFT STRUCTURES**

**AFTERNOON SESSION**

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1. Conference: the agenda, topics and sessions

TUESDAY, 4 JUNE 2019

SOFTENING THE ENVIRONMENT

AFTERNOON SESSION

ENVIRONMENTAL COMPATIBLE MEMBRANE STRUCTURES *
Chairs: Carol Monticelli, Petr Vegh

MATERIAL ANALYSIS AND PERFORMANCE ASSESSMENT
Chair: Peter Gosling
1. Conference: the themes, topics and sessions

WEDNESDAY, 5 JUNE 2019

SOFT SKINS

AFTERNOON SESSION

<table>
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<th>ADAPTIVITY OF TRANSPARENT FOIL-BASED SKINS</th>
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<td>Chairs: Giorgio Novati, Monika Rychtáříková</td>
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<td>Extreme living + Design &amp; Simulation</td>
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<td>Thermal &amp; acoustic comfort</td>
<td>Thermal &amp; acoustic comfort</td>
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</table>
2. TS open talk / WG meetings
2. TS open talk / WGs meetings

OPEN TALK session
on the main topics of the
TensiNet Working Groups
Chairs: Stefania Lombardi, Bernd Stimpfl

Aiming
- to share especially with the non members the advancements and the innovations carried out by the WGs
- to disseminate the activity developed inside the Tensinet Association
3. Updates on submissions to the call for abstracts
3. Updates on submissions to the call for abstracts

64 abstracts received and approved after the double review:

42 of them accepted
22 of them with needed revisions.

From the 64, per Affiliations:
48 Academia
16 Company
3. Updates on submissions to the call for abstracts

A SPECIAL THANKS TO THE SCIENTIFIC COMMITTEE

Coordinators:
Alessandra Zanelli
Carol Monticelli
4. Proceedings and selected journal
4. Proceedings and selected journal

**OPEN ACCESS PUBLICATION**

of the Softening the Habitats Proceedings by the italian editor Maggioli,
ISBN code and DOI code for each paper
with the Creative Commons CC BY-ND

A selection of the 25 best full papers will be published on a Special Issue of the *Architectural Engineering and Design Management*, TAYLOR & FRANCIS ED.

An award of the BEST / MOST INTERESTING PAPER
5. Exhibition: the theme, the locations

The exhibition will focus on the change tensile architecture is undergoing

INTENSION EXHIBITION

The exhibition aims at presenting
- cutting-edge projects
- techniques
- materials

that have recently been implemented in the field of tensile architecture and have the potential of changing the construction and the lifespan of membrane structures for a more sustainable built environment.
5. Exhibition: the theme, the locations

**INTENSION**
weights the future of lightweight structures in the context of the environmental crisis,
with the intention of making advancements in the field well-known and widespread in the building construction practice
5. Exhibition: the theme, the locations

There are two exhibiting modes, one for posters and one for prototypes.

The **posters** are aimed at showcasing already completed tensile projects, or otherwise on the way to completion, having a relatively large scale, that implies they can only be displayed through drawings, renders or photos of the project.

The **prototypes** are aimed at showcasing experimental tensile projects having a relatively medium or small scale. They can either be scaled models of from 1:10 to 1:2, or 1:1 mock-ups but the latter is preferred, even if it is a partial model of the real structure.
5. Exhibition: the theme, the locations

There will be 3 spaces for the poster exhibition with different degrees of visibility:

- Main pavilion and symposium entrance - very high visibility
  organised in booths

- Exhibition space “Guido Nardi” - medium-high visibility
  organised by the INTENSION installation using lightweight materials and it will also display the selected posters from the call for exhibiting

- Exhibition hall - medium visibility
  a simpler installation will take place and smaller posters selected from the call

**TIME:** 3 - 15 of June 2019 → prolonged exposure and visibility to the projects
5. Exhibition: the theme, the locations

The prototypes will be distributed in the green open-air areas of PoliMi according to their size.

**TIME:** installed and dismantled by their authors within two days prior and after the conference, and will be on display for the whole duration of the conference.
5. Exhibition: the theme, **the locations**
5. Exhibition: the theme, the locations
5. Exhibition: the theme, the locations, the installation
6. Visits and gala dinner
6. Visits and gala dinner

MONDAY, 3 JUNE 2019

Field Trip  6:00 – 7:30 PM
6. Visits and gala dinner

**MONDAY, 3 JUNE 2019**
Field Trip  6:00 – 7:30 PM

**TUESDAY, 4 JUNE 2019**
Social Dinner  8:30 PM
6. Visits and gala dinner

MONDAY, 3 JUNE 2019
Field Trip  6:00 – 7:30 PM

TUESDAY, 4 JUNE 2019
Social Dinner  8:30 PM

WEDNESDAY, 5 JUNE 2019
Conclusion  6:00 – 6:30 PM
7. Call for exhibiting
7. Call for exhibiting

Who can participate?
A wide range of professionals can apply to the call for exhibition, but the exhibition mode chosen from the two options has to be specified clearly. Firms, companies, producers, engineers, architects, designers, researchers and academics are gladly invited to take part in the call.
7. Call for exhibiting

Who can participate?
A wide range of professionals can apply to the call for exhibition, but the exhibition mode chosen from the two options has to be specified clearly. Firms, companies, producers, engineers, architects, designers, researchers and academics are gladly invited to take part in the call.

How to participate
Categories of exhibitors
Selection criteria
Deadlines
Fees

You can find all these info here:
www.tensinet2019.polimi.it
tensinet2019exhibition@polimi.it
#softeningthehabitats
7. Call for exhibiting

Who can participate?
A wide range of professionals can apply to the call for exhibition, but the exhibition mode chosen from the two options has to be specified clearly. Firms, companies, producers, engineers, architects, designers, researchers and academics are gladly invited to take part in the call.

How to participate
Selection criteria
Deadlines
Fees

You can find all the infos:
www.tensinet2019.polimi.it
tensinet2019exhibition@polimi.it
#softeningthehabitats

31st October – deadline for Call for Posters
31st January – deadline for Call for Prototypes
8. Call for sponsoring
8. Call for sponsoring

Sponsor Platinum € 4000,00
Sponsor Gold € 3000,00
Sponsor Silver € 2000,00
Sponsor Copper € 1000,00

Sattler, 3M Dyneon are gold sponsors!
Thank you
8. Call for sponsoring
8. Call for sponsoring

Benefits for donors

9. Deadlines matrix
9. Deadlines matrix

- **Call for abstract**: 31 May 2018
- **Launch of call for Exhibiting**: 24 September 2018
- **Full papers Call for Posters**: 31 October 2018
- **Communication of the selected posters**: 31 January 2019
- **Acceptance of papers**: 10 January 2019
- **Call for Prototypes**: 31 January 2019
- **Communication of the selected Prototypes**: 1 March 2019
- **Early birth registration**: 28 February 2019
- **Launch of call for Exhibiting**: 3-5 June 2019
WWW.TENSINET2019.POLIMI.IT

tensinet2019symposium@polimi.it
Registration | Submission

tensinet2019exhibition@polimi.it
Sponsorship | Exhibition
- TensiNews 35 – call for TensiNews 36
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Reports of the TensiNet Working Groups

- ETFE - Rogier Houtman
- Sustainability & Comfort - Jan Cremers / Carol Monticelli
- Analysis & Materials - Peter Gosling
- Pneumatic Structures – Jean-Christophe Thomas
- Specifications Eurocode - Marijke Mollaert
- Good Practice – Heidrun Bögner Balz
- Foundation – Peter Gosling
Sustainability and Comfort Jan Cremers / Carol Monticelli
Sustainability and Comfort Jan Cremers / Carol Monticelli

Call for a Special Issue on the International Journal “Sustainability” (ISSN 2071-1050, IF 2.075)

**AIM** - Valorize our research exchanges after the conclusion of EU-COST ACTION TU1303
Sustainability and Comfort Jan Cremers / Carol Monticelli

Call for a Special Issue on the International Journal “Sustainability”

IDEA - Disseminate the topics and the researches related to sustainability and form,
sustainability and comfort,
sustainability and LCA
of the different living systems enclosed in structural skins (lightweight/ultra lightweight closures, membrane envelopes).
Sustainability and Comfort Jan Cremers / Carol Monticelli

Call for a Special Issue on the International Journal “Sustainability”

Link to the Special Issue Website at: http://www.mdpi.com/journal/sustainability/special_issues/Novel_Structural_Building_Skins

The submission deadline is 31 March 2019.

All of you are invited to participate with your work and write an article to submit for the peer-review!!!
Sustainability and Comfort Jan Cremers / Carol Monticelli

NEXT STEPS for 2019!

- from October to June: Skype call between the WG S&C
- June 2019: TS2019 – Softening the habitats: A dedicated WG S&C meeting with the members to discuss on further steps
Pneumatic structures Jean-Christophe Thomas
**Pneumatic structures** Jean-Christophe Thomas

**AIM**
- promote the understanding of pneumatic structures
- follow and collect advances in this field, (architecture, design rules, calculation methods, manufacturing, etc…)
- discuss evolutions and improvements
- disseminate good design practices

**TASK**
Write the Annex 6 of the Tensinet Design Guide: Recommendations for Pneumatic Structures
Pneumatic structures Jean-Christophe Thomas

Subgroups

- **Cushions** (Karsten Moritz, Bernd Stimpfle, Romuald Tarczenski)
- **Inflatable beams** (Jean-Christophe Thomas)
- **Tensairity** (Paolo Beccarelli, Lars De Laet)
- **Air domes** (Matti Orpana, Jürgen Holl)

Inflatable beam - Slacked zone
Pneumatic structures Jean-Christophe Thomas

Table of content

- Developments of pneumatic structures
  - First patents
  - First construction
  - Years 60-70: great developments, (OSAKA World Expo 70, first colloquium Stuttgart 1967)
  - Years 70 -80 -90: roofs and mono-membranes, inflated structures
  - Inflatable cushions
  - Tensairity
  - Art and architecture
  - Actuality, novelties
- Outline design process
Pneumatic structures Jean-Christophe Thomas

- Pneumatic structure
  - Typology
  - Fabrication
  - Connections
- Recommended design process
- Design recommendations and guidance
  - Definition of brief
  - Scheme design
  - Design input
  - Design analysis
  - Post processing
  - Pre construction design
  - Post construction assessment
Pneumatic structures Jean-Christophe Thomas

- Design analysis: theories
  - Formfinding - technet
  - Statics
  - Patterning
  - Air inflated cushions - Paolo
  - Inflatable beams
  - Tensairity
Pneumatic structures Jean-Christophe Thomas

- Examples of case studies (based on the questionnaire)
  - Air supported
    - Airhall
    - Roof (Tokyo)
  - Air inflated
    - Air beam
    - Air cushion
    - Air mattress
  - Hybrid
    - Air hall – air cushion
    - Tensairity
  - Air restrained
- Outlook & Annexe: key reference publications
Pneumatic structures
Jean-Christophe Thomas

NEXT STEPS
- July 2018 - December 2018: finalise
- January 2019 - April 2019: layout and printing
- June 2019: presentation at Symposium 2019
Specification Eurocode Marijke Mollaert

CEN TC250 WG5 Membrane structures

AIM – Development of a future Eurocode for the Structural Design of Tensile Membrane Structures which will help to design and implement these lightweight structures.
Specification Eurocode Marijke Mollaert

CEN TC250 WG5 Membrane structures
Technical Specifications

Projectteam CEN TC250 WG5
Bernd Stimpfle (DE)
Peter Gosling (UK)
Jean-Christophe Thomas (FR)
Jörg Uhlemann (DE)
Ramon Sastre (ES)
Specification Eurocode Marijke Mollaert

Chapters - Subgroups
- **Materials + Durability** (Natalie Stranghöner, Heidrun Bögner-Balz)
- **Basis of design** (Marijke Mollaert, Bernd Stimpfle)
- **Basis of structural analysis** (Nick Gibson, Bernd Stimpfle)
- **ULS + SLS** (Bernd Stimpfle, Jörg Uhlemann)
- **Details + Execution** (Alessandra Zanelli, Rogier Houtman)
Specification Eurocode Marijke Mollaert

Additional/parallel tasks: Reliability analysis

Round robin exercise 4 to calculate the reliability
Specification Eurocode Marijke Mollaert

&

Additional/parallel tasks: Collect data on materials
Specification Eurocode Marijke Mollaert

NEXT STEPS

- 5 November 2018: CEN TC250 WG5 meeting, Afnor
- 22-23 November CEN TC250 (Amersfoort)
Specifications Good Practice Heidrun Bögner-Balz

**AIM** - Establish a quality standard in the manner of “good practice rules”.

Rules for each branch (Membrane Material Producer, Raw Material Producer, Membrane Manufacturer, Designers/Engineers, Architects, Testing Laboratories) shall be formulated as well as general rules for all involved parties.

As soon as the rules have been formulated and agreed a quality seal “*We follow the approved standards of good practice rules of TensiNet*” or similar is considered to being established.
Specifications Good Practice  Heidrun Bögner-Balz

The first draft of the code of conduct has been finished.

NEXT STEPS
○ Language check
○ Check by a lawyer
○ Publication on the website (including List of subscribers)
Thank you for your attention

More info on www.tensinet.com