



# Design Beyond

## Boundaries

The Intersection of  
Architects & Engineers  
LSAA Conference &  
Design Awards  
September 1—2, 2016

Monash University  
Art Design & Architecture  
Caulfield Campus  
Building G, Theatre 1.04  
900 Dandenong Road  
Caulfield Victoria, Australia

Keynote Speaker

# Nicholas Goldsmith



Nicholas Goldsmith is a Senior Principal at FTL Design & Engineering Studio. Prior to joining the firm in 1978, he was a designer at Atelier Frei Otto in Stuttgart, Germany. He is a member of the College of Fellows of the AIA, the IASS, and former Chairman of the Lightweight Structures Association. Nicholas Goldsmith was in charge of design for many of FTL's projects, including the award winning Russell Aitken Seabird Aviary at the Bronx Zoo, the award winning DKNY Headquarters Building in New York, and the MOMRA Recreation Center in Saudi Arabia. In addition, he designed the Carlos Moseley Music Pavilion for the Metropolitan Opera and NY Philharmonic a deployable concert facility, traveling to all NYC's parks. Nicholas Goldsmith has designed exhibitions including "Under the Sun" an exhibition on solar energy for the Cooper-Hewitt, National Design Museum in NY and Smithsonian Institution in '98 and '99, a worldwide traveling interactive exhibition for the United Nations (UNFPA), and an exhibition for Material Connexion on "Tensions in Architecture". He has been featured in innumerable publications including an Architectural Monograph titled: FTL: SOFTNESS, MOVEMENT & LIGHT, published by Academy Editions in 1998, and the entire May 1995 Interiors Magazine. Nicholas Goldsmith's academic experience includes Adjunct Professor at the University of Pennsylvania from 1990 to 2004 and the 2001 Visiting Professor in Innsbruck, Austria. He was a visiting Professor at the Pratt School of Architecture from 1992 through 1997 and a wide range of international lectures and teaching in the US, the UK, Germany and South America. Awards include the Dupont Benedictus Award and the IDEA Bronze Award, numerous NY AIA Design Awards, over 25 IFAI Fabric Structure awards, the 28th Bard Award for Excellence in Architecture and Urban Design, the 1990 Waterfront Center's Award in Cincinnati, and the State of Florida's Governors Design Award.

## **Keynote Address: Shape Making or Form Finding?**

Often design professionals conflate the process of shape making with the more deliberate form finding approach. This lecture will discuss the differences in the design process between these two approaches. It will examine historical traditions of both approaches and look at Frei Otto and his physical modelling approach as an example of the Form Finding process, how it examines material intelligence to set in motion an iterative approach where the end result is discovered and not known beforehand. Examples of the work of FTL will be used as descriptive case studies to illustrate the different aspects of membrane envelopes including ETFE foil cushions, tensile membranes, and cable nets.

## **Public Lecture: From Mass to Membrane**

If we look at a historical evolution of architecture from the massive pyramids of Egypt, to the framed structures of Greek/Roman construction, to the lighter Gothic vaulting, to eventually Modern architecture of the 20th century. We see a continuous almost linear progression from solid mass constructions to framed buildings of glass and steel. Today we are in the early steps of moving from glass and steel structures to diaphanous skins of membrane and foil structures. These new materials incorporate inherent technologies and the aim is to understand how these technologies will affect our spatial experiences and in the process explore lightness as a visual, physical and sustainable approach. Mass to Membrane is our human architectural journey; can we use less material, be more sustainable, and help reduce our carbon footprint on the planet we call earth? Can this linear progression become one of the keys in a more sustainable tomorrow?

## Day 1

08:30	Registration	
09:00	Conference Welcome	Dr Kourosch Kayvani —LSAA President
09:10	Platinum Sponsor Welcome	Serge Ferrari /HVG Fabrics
09:20	Keynote Address—Shape Making or Formfinding?	Nicholas Goldsmith Senior Principal FTL Design Engineering Studio
10:10	Morning Tea / Networking	
10:30	Reflections on the Contribution of Frei Otto	Prof Vinzenz Sedlak
10:40	Frei Otto Spanning the Future Documentary —The Evolution of Tensile Membrane Architecture	Frei Otto Film
11:40	Panel Discussion on Frei Otto's Influence in Australia	Prof Vinzenz Sedlak / Nicholas Goldsmith / Dr Robert Roithmayr
11:50	Questions	
12:00	Lunch / Networking	
13:00	Projects Focus	Peter Lim—LSAA VP
13:10	Gold Sponsor Welcome	Mehler Technologies
13:20	Summer Pavilion at National Gallery of Victoria	Mathew Van Kooy—JWA
13:40	New Perth Stadium—The Structure of Surface	Stuart Harper—Cox Architecture / Scott Rathie— Arup
14:00	Delicate Structures	Prof Nigel Bertram —NMBW /MADA
14:20	Jim Stynes Bridge, Docklands	Peter Murenu—Aurecon
14:40	Energy Absorbing Structures	James Marr—Tensys
15:00	Zoo Enclosure—Augsburg Zoo Aviary & San Diego Zoo Africa Rocks Exhibit	Barbara König—Carl Stahl
15:20	Questions for Session Authors	
15:30	Studio Design Workshop Information / Team Assignments	Dr Peter Kneen / Maud Cassaignau
15:40	Afternoon Tea / Networking & Public Lecture Registrations	
16:15	Public Lecture	Dr Kourosch Kayvani —LSAA President
16:15	Welcome to Public & Brief Introduction to LSAA & Session	Dr Kourosch Kayvani
16:30	Public Lecture—From Mass to Membrane	Nicholas Goldsmith FAIA LEEDS AP
17:30	Questions	
19:00	Pre-Dinner Drinks & Design Awards Conference Dinner Dress Code: Jacket & Tie Suggested / Venue TBC	

# Day 2

09:00	Day 2 Welcome	Peter Lim—LSAA VP
09:10	Keynote Address—Stadia Roof Topology Through Design Methodology	Ron Van Sluijs—Associate Principal Populous
09:50	Morning Tea / Networking	
10:20	Experimentation & Digital Systems	Bob Cahill
10:30	Gold Sponsors Welcome	Gale Pacific
10:40	Digital Innovation—A Consultant's Perspective	Dr Andrew Maher—Aurecon
11:00	Application of Evolutionary Structural Optimisation to Architectural Design	Prof Mike Xie—RMIT
11:20	Designing the Dynamic—Learning From Gaudi	Assoc Prof Jane Burry—RMIT
11:40	Computational Design and Robotic Fabrication in Architecture	Dr Tim Schork—MADA
12:00	Questions for the Session Authors	
12:10	Lunch / Networking	
13:00	Design Workshop	Maud Cassaignau / Dr Peter Kneen
13:10	Studio Design Workshop—General Principles of Tension Structure; Model Making Processes / Demonstration; Hands on Model Making Workshop; Discussion / Questions	Prof Vinzenz Sedlak—Technological University of Vienna / Dr Robert Roithmayr—Formfinder Software GmbH (With Tutors)
16:50	Conference Close	Dr Kourosh Kayvani & MADA

Conference Organising Committee Peter Lim, Rowan Murray, Peter Kneen, Bob Cahill, Brian O'Flaherty (LSAA), Tim Schork, Maud Cassaignau (MADA)

Conference Identity Johanna Schreiner  
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 Supervision / Art Direction Warren Taylor (MADA)  
 Printing Printgraphics, Melbourne

## Presenting Partners



## Platinum Sponsor



## Gold Sponsors



## Silver Sponsors



Keynote Speaker

# Ron Van Sluijs



With a background in Architectural Engineering and training in Europe, Ron has particular skills in the structural aspects of architecture, including designs of bespoke roofs and facades, long span structural design and analysis and construction detailing. Throughout his architectural career, Ron has managed the architectural development and documentation of a variety of large scale buildings including sports stadia, multipurpose arenas, convention centers, airport terminals, subway stations and a number of office blocks. Ron was the Project Architect for the innovative Forsyth Barr Stadium in Dunedin, New Zealand — the world's only stadium with a natural grass pitch growing under a fully fixed roof. This project was made possible through the use of ETFE — A transparent polymer originally developed for the space industry, to clad the stadium's roof and facades. Ron was the Project Architect for the Manila Arena in the Philippines, which is the world's largest enclosed arena, with a capacity of 50,000, as well as the Taipei Dome — a baseball stadium which forms part of a large commercial mixed use development in Taiwan.

## Keynote Address: Stadia Roof Typology Through Design Methodology.

The large urban scale of stadia mean the structure often simultaneously dictate the form and the architecture of the venue though for the large span stadia structures only a limited number of typologies can be identified. It's a challenge to methodically select the best fitting structure while maintaining a fresh and different aesthetic language. By illustration of various case studies this talk shall elaborate on a number of structural stadia roof typologies, both lightweight and heavy, and how these were developed architecturally and structurally.

# 2016 LSAA Design Awards & Gala Dinner

LSAA is the pre-eminent technical organization promoting the proper application of Lightweight Structures. The 2016 Design Awards will be presented at the Design Awards Gala Dinner to be held on Thursday 1<sup>st</sup> September.

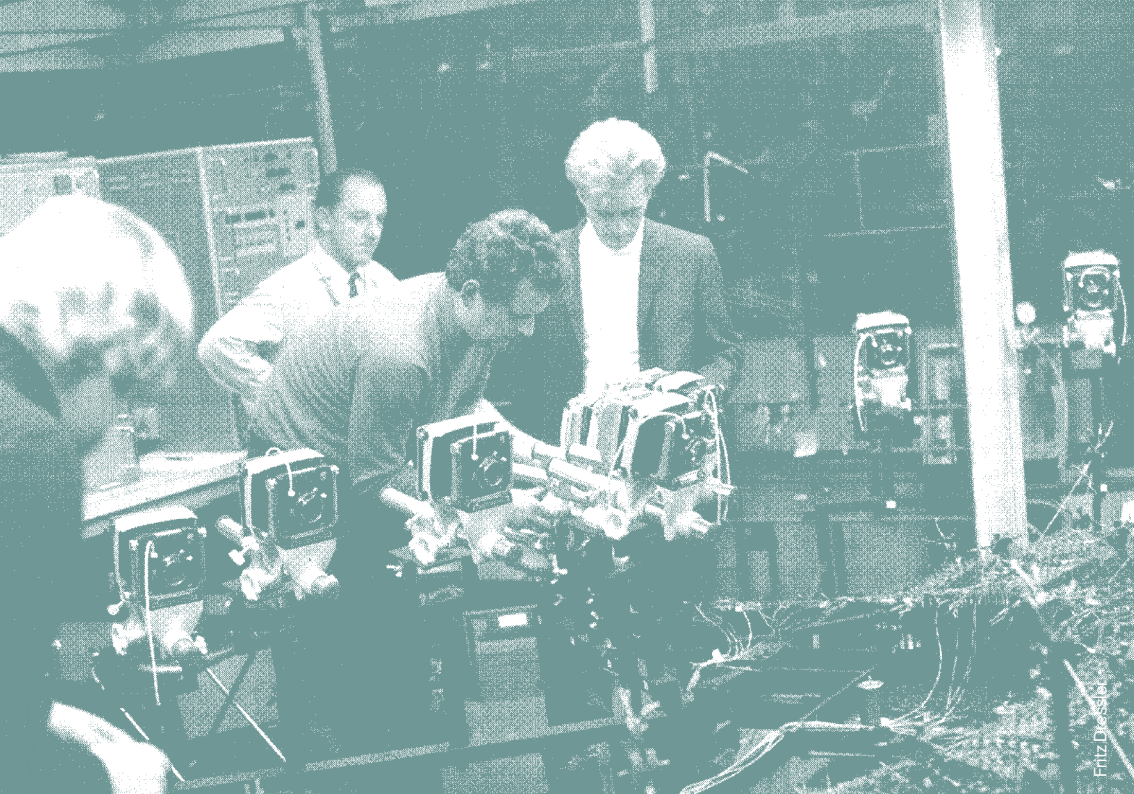
The 2016 Design Awards for completed projects (since November 2013) will considered in the following categories:

1. Small Structures  
Project area < 250m<sup>2</sup>
2. Medium Structures  
Project area between 250m<sup>2</sup> and 1,000m<sup>2</sup>
3. Shadecloth Applications  
Tensioned structures from shade cloth material.
4. Large Structures  
Project area exceeds 1,000m<sup>2</sup>
5. Glazing And Vertical Facades  
Large span glazing walls or roofs, other forms of lightweight facades (cable nets etc)
6. Design and construction collaboration  
Iconic projects whose success is attributed to close collaboration.
7. Special Applications And Innovations
8. International Projects



Penguin Parade Philip Island

Visit [www.lsa.org](http://www.lsa.org) for 2016 Design Award Registration & Entry Conditions



Fritz Dieckhoff

Film Screening

# Frei Otto: Spanning the Future

60min Documentary, 2016 (USA)  
Executive Producer: Simon K. Chiu  
Written & Narrated by Michael Paglia  
Directed by Joshua V. Hassel

Frei Otto: Spanning the Future is a documentary about the incredible life and work of Frei Otto. As an architect and engineer he laid the foundation for contemporary lightweight architecture, and his ideas are still awe inspiring decades after he revealed them. This fact was cemented when he was named the 2015 Laureate of the Pritzker Architecture Prize.

In one of the final interviews given before his passing, Frei Otto tells how coming of age in the years surrounding WWII influenced his work in tensile architecture. Along with Buckminster "Bucky" Fuller, Walter Gropius, Frank Lloyd Wright, and Richard Neutra, Frei Otto was a visionary. His approach to form finding to solve structural as well as social problems is the foundation for modern architecture. Frei Otto: Spanning the Future takes architecture fans on a journey through a history of architecture that inspires the world of tomorrow.

[www.freiottofilm.com](http://www.freiottofilm.com)

## **2016 LSAA Conference Registration**

All attendees to the Conference or the Public Lecture MUST register. You must also bring any booking voucher to the Conference Registration Desk at the Conference.

### **Registration Fees (\$AUD)**

#### **Full Conference Fees for Financial LSAA Members \$750**

This covers all sessions on both days, morning and afternoon teas, lunch, public lecture, conference dinner and the workshop.

#### **Full Conference Fees for non LSAA Members \$850**

This covers all sessions on both days, morning and afternoon teas, lunch, public lecture, conference dinner and the workshop.

#### **Extra guests for the Conference Dinner and Awards Presentation \$125**

This covers the pre-dinner drinks and the Conference Dinner.

#### **Public Lecture "From Mass to Membrane" by Nicholas Goldsmith \$20**

#### **Full time Students \$75**

This covers the technical sessions on both days and the Public Lecture. It does not cover the Conference Dinner or pre-dinner drinks.

To attend the Friday afternoon workshop, the student fee is an additional **\$100**

## **2016 LSAA Conference Venue**

LSAA is delighted to present its 2016 Bi-annual Conference in partnership with Monash University Faculty of Art, Design and Architecture.

The conference will be held at the Faculty of Art Design & Architecture Monash University, Caulfield Campus Building G, Theatre 1.04 900 Dandenong Road Caulfield Victoria, Australia

The Campus is located nine kilometres from the city of Melbourne and is adjacent to the Caulfield Railway Station which services the Cranbourne, Frankston, Pakenham and Dandenong lines. The Campus is easily accessible by train, tram or bus.

### **For more information contact the LSAA Conference Coordinators**

**Email:** [office@lsaa.org](mailto:office@lsaa.org)


**Tel:** + 61 428 414 093

**Lightweight Structures**

**Association of Australasia Inc.**

**P O Box 4047, Oatley, NSW 2223**





The Lightweight Structures Association is a Not for Profit, autonomous, inter-disciplinary group of interested parties involved in the field of lightweight structures. Operating primarily in Australia and New Zealand our basic aim is to promote the proper application of lightweight structures, their design, fabrication, construction and materials and to encourage the development of these and other aspects essential to lightweight structures.

[www.lsaa.org](http://www.lsaa.org)