

## **LSAA 2011 Conference and Design Awards Collaborative Design of Lightweight Structures**

A two day Conference which will highlight the benefits of close collaboration between designers, fabricators, installers and clients to ensure the best outcome for a lightweight structure project.

Sydney, October 13 and 14 2011 (Thursday, Friday)

Venue - Novotel Hotel  
Sydney Olympic Park

Phone: (02) 8762 1111 Web: [www.novotelsydneyolympicpark.com.au](http://www.novotelsydneyolympicpark.com.au)

**In conjunction with a Technical Workshop at the same venue on the**

### **Design of Tensioned Shadecloth Structures**

Novotel Sydney Olympic Park, Wednesday October 12 2011

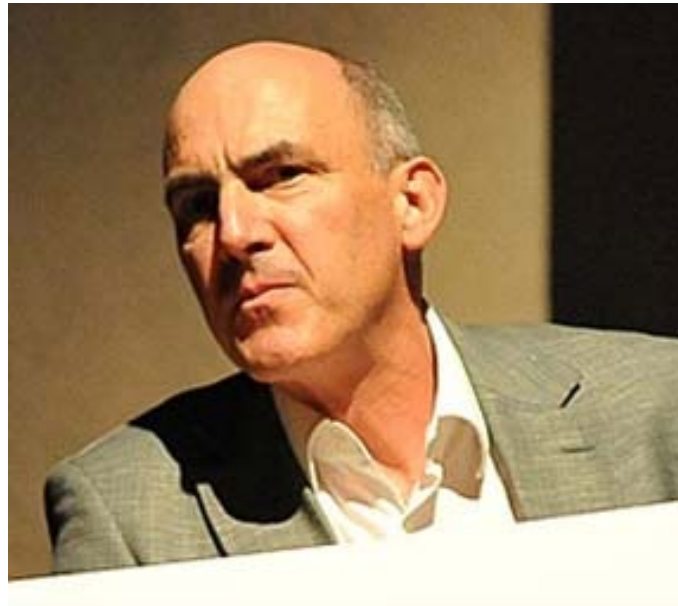
LSAA 2011 is supported by Engineers Australia with CPD Credits

Websites: [www.LSAA.org](http://www.LSAA.org)



## Conference Details – Keynote Speakers

Our invited International Speaker is Professor Mike Schlaich.



Mike is Professor for Structural Engineering chairing the Department of Conceptual and Structural Design at Technische Universität Berlin (TU Berlin). He is also the Managing Director of Schlaich Bergemann und Partner, Consulting Structural Engineers, Germany. He studied civil engineering at the University of Stuttgart and ETH Zurich, and received PhD in civil engineering from ETH Zurich in 1989.

Mike worked in Spain as a structural engineer before joining in the firm of Schlaich Bergemann and Partner in Stuttgart which specializes in lightweight and long-span structures. He became Managing Director of the firm in 2002, which has been active in the field of renewable energies for more than 20 years. Systems for solar thermal energy production including dish-stirling concentrators, trough collectors and the solar updraft tower were successfully developed by the office.

### **We are also privileged to have a keynote speaker from Populous (Architects).**

Populous have played a lead role in a number of high profile sports projects in Australia and New Zealand. Daryl Maguire is an Associate Principal with Populous and has over 20 years experience in commercial, retail, civic, residential and interiors projects, with excellent management and communication capabilities. He is committed to creating co-operative relationships that guarantee successful partnerships with clients and project teams.

Daryl joined Populous in February 2008, and has worked predominantly on the Eden Park Redevelopment. His role on the project included masterplanning, and looking at the required temporary facilities for the stadium to host matches of the 2011 RWC. He was also involved in the concept design and feasibility study for Western Springs Cricket and the Mount Smart Masterplan, and the design competition for the Auckland Convention Centre.



The Lightweight Structures Association of Australasia (LSAA) is a not for profit Association for members with a passion for designing, fabricating, constructing and supplying materials and components for a range of lightweight structures. Projects cover tensioned membranes, cablenets, cable supported roofs, steel arches, high tech glazing wall facades and roofs. Typically they are large clear spans over public spaces and require a deep understanding of structural behaviour and form to create exciting 3D curved spaces where often the structure is the main load supporting system as well as the environmental barrier.

The unique characteristics of such applications – stadia, transport hubs, exhibition spaces, clear span environmental protection – requires an added degree of collaborative design input to be successful. It is also a feature of these structures that the design details are exposed, very variable in 3D geometry and visible which in turn demands an extra level of design input. There is normally specialized expertise needed for the erection or assembly of such delicate but graceful structures.

Iconic Lightweight Structures will only be deemed successful if there is a truly collaborative design team that includes the end client, project managers, architects, engineers (structural and for services in particular), specialized suppliers of high tech fabrics, cables, anchorages, glazing and other components.

Many solutions – particularly those involving architectural fabrics and cable supporting systems – will be prestressed and as such skilled installers are needed and their input is critical early in the design process.

More and more, these team members will need to communicate and build up a 3D virtual structure from which all members can both visualize the details, determine stresses and erection sequencing as well as provide costings and assurances that there are no clashes when constructed. This requires the different software systems to adhere to interoperability standards to reduce errors. The current Building Information Model software concepts and various related standards for information storage are seen to be central to the efficient working of the design team and the final realization of the project. This virtual model should be capable of simulating erection and be available for ongoing asset management of the facility.





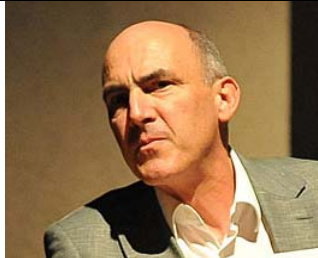
CONFERENCE PROGRAM – DAY 1, Thursday October 13 2011

GOLD SPONSOR – DAY 1



**Mehler Texnologies – Engineered Fabrics**

Start	End	Paper	Session: Activity, Presentation	Author / Chair
8.30	9.00		<b>Registrations</b>	
		<b>S1</b>	<b>S1 Welcome, Opening, Keynote</b>	<b>Peter Lim</b>
9.00	9.10		Conference Welcome	Kourosh Kayvani LSAA
9.10	10.00	S1A	Keynote Address Conceptual design of light-weight structures	 Mike Schlaich
10.00	10.30		<b>Morning Tea / Networking</b>	
		<b>S2</b>	<b>S2 Collaborative Design</b>	
10.30	10.50	S2A	Building Physics	 Haico Schepers - Arups
10.55	11.15	S2B	Lighting Design Collaboration – A Case Study	 Paul Beale - Electrolight
11.20	11.40	S2C	Acoustics and Lightweight Roof Structures – Hyatt Regency Perth Case Study	Alastair Bavage Marshall Day

Start	End	Paper	Session: Activity, Presentation	Author / Chair
11.45	12.05	S2D	Wind loading on lightweight structures	Graeme S. Wood Cermak Peterka Petersen
12.05	13.00		<b>Lunch / Networking</b>	
			<b>S3 Collaborative Design</b>	
13.00	13.20	S3A	Digital architecture	Paul Minifie/Jan van Schaik
13.25	13.45	S3B	Tensile engineering	Peter Lim Tensys
13.50	14.10	S3C	Collaboration in transparent enclosures	Damian Murphy Aurecon
14.15	14.35	S3D	Adelaide Oval Western Grandstand Redevelopment	 Garth Rowland Aurecon
14.40	15.00	S3E	Erection of the Moses Mabhida Stadium Roof – Durban	 Thomas Hermeking Pfeifer
			<b>Afternoon Tea / Registration</b>	
		<b>S4</b>	<b>S4 Public Lectures: Lightweight Structures</b>	
16.15	16.30	S4A	LSAA Introduction	Dr Kourosh Kayvani LSAA
16.30	17.30	<b>S4B</b>	<b>Public Lecture: – Lightweight Structures</b>	 Mike Schlaich

**CONFERENCE PROGRAM – DAY 1, Thursday October 13 2011**  
**GOLD SPONSOR – LSAA Design Awards and Conference Dinner**  
**Hiroaka – Advanced Fabrics**



## Some 26 Projects have been entered for the 2011 Design Awards

The 2011 LSAA Design Awards are given in recognition of excellence in design, innovation, construction and application of Lightweight Structures.

Awards will be considered in the following categories:



- 1 SMALL STRUCTURES Domestic, 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 External tensioned structures from knitted polyethylene shade cloth material.
- 4 LARGE STRUCTURES Project or component 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) to control interior environments.
- 6 DESIGN AND CONSTRUCTION COLLABORATION  
Completed projects whose success is attributed to close collaboration between multiple members of a team and where extensive use was made of emerging collaborative tools. Entries in this category are to be signed off by at least three different team members.
- 7 SPECIAL APPLICATIONS AND INNOVATIONS  
Includes applications of lightweight structures used in an interior environment, manufactured as a product, and can be either temporary, demountable, relocatable or permanent structures. (Interior structures, large awnings, shelter structures, are some examples). Applications using new technology and sustainability principles. Innovations in the teaching of collaborative design.

**CONFERENCE PROGRAM – DAY 2, Friday October 14 2011**  
**GOLD SPONSOR – LSAA Design Awards and Conference Dinner**  
**Serge Ferrari – Architectural Fabrics**



## Serge Ferrari

Start	End	Paper	Session: Activity, Presentation	Author / Chair
			<b>S5 Keynote</b>	
9.00	10.00	S5A	Keynote Address – Daryl Maguire (Populous NZ)	 Daryl Maguire Populous
10.00	10.30		<b>Morning Tea / Networking</b>	
			<b>S6 New Projects/ Material</b>	
10.30	10.50	S6A	Taronga Zoo Chimpanzee Enclosure Cable net grid application in aviaries	Ronstan
10.55	11.15	S6B	Insulated Tension Membrane (Architectural Membrane and Aerogel)	Mike Lester Birdair Inc, Australia
11.20	11.40	S6C	Glen Eira Aquatic Centre tensile canopy – a case study of insulated tension structure	James Marr Tensys Engineers
11.45	12.05	S6D	Interior architecture & textile facades	F Fournier Ferrari
12.05	13.00		<b>Lunch / Networking</b>	
			<b>S7 Technology &amp; Tools</b>	
13.00	13.20	S7A	BIM – Adding Value by Assisting Collaboration	 Jennifer MacDonald UTS

Start	End	Paper	Session: Activity, Presentation	Author / Chair
13.25	13.45	S7B	Engaging Generative BIM Workflows	 Jonathan Mirtschin Geometry Gym
13.50	14.10	S7C	Preparing for Building Information Modelling	P Cocciardi Managing Director – Cocciardi Pty Ltd
14.15	14.35	S7D	BIM – where to next?	 John Mitchell buildingSMART Australasia
14.40	15.00	S7E	Digital Technology and IPD - a case study. The Crystals Mall- Las Vegas	Kerry Lindeman, BDS VirCon
15.00	15.30		<b>Afternoon Tea / Networking</b>	
			<b>S8 LSAA Member Project Reports</b>	
15.30	16.15	S8A	LSAA Member Project Reports	
16.15	17.00	S8B	Panel: Industry Issues; <b>Closure</b>	

## Conference Exhibition Sponsors

 <b>Nolan.UDA</b> <i>The Best of Both Worlds</i>	 <b>ABES<sup>oz</sup></b> Advanced Bridge Engineering Systems	 <b>RONSTAN</b> TENSILE ARCHITECTURE
 <b>HVG</b> HALIFAX VOGEL GROUP	 <b>onesteel</b>	 <b>Atex</b>